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IN THIS ISSUE

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RAILWAYS OF THE NORTH PENNINES LEAD MINES

GWR RAILCARS IN COLOUR

RAILWAYS AND EDINBURGHSHIRE

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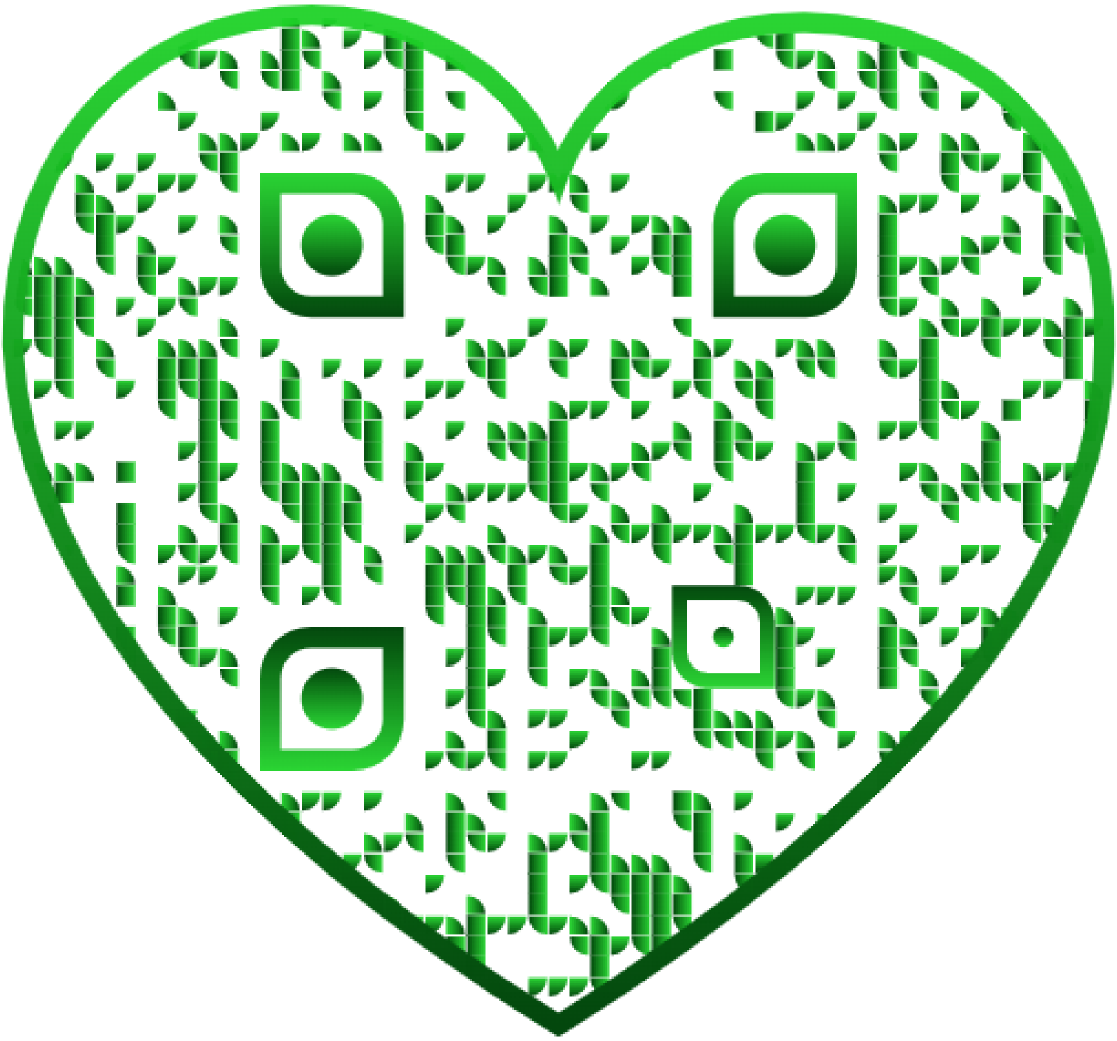

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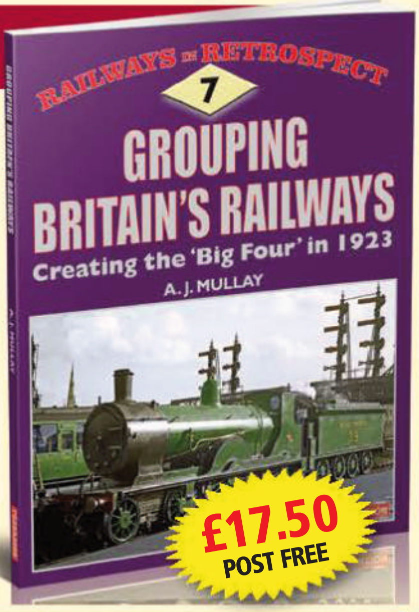

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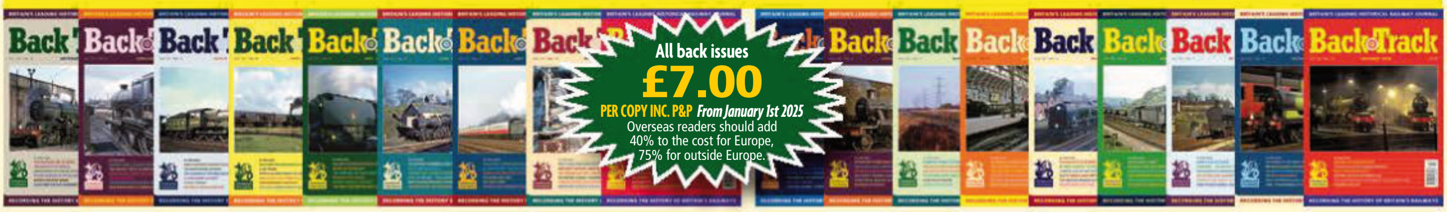

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Editorial

BackTrack
Vol. 39 · No. 1
No. 405
JANUARY 2025
RECORDING THE HISTORY OF BRITAIN'S RAILWAYS

It's in the post...

Welcome to the first issue of *Backtrack* 2025! Last month I referred to a shortish journey made from York on a train heading from the North East or maybe even Scotland to Penzance and how I thought I couldn't face the rest of the 6½-hour marathon to Cornwall in the cramped standard class accommodation I was relieved to leave behind when alighting at Chesterfield. In September when embarking on an organised concert trip to London from North Yorkshire I experienced undertaking the journey by road coach, an odyssey which took over six hours to deliver me to our hotel somewhere near Stratford, with two 'servicing' stops of around 40 minutes on the way.

While I might have to concede that the double seat I was allocated was perhaps more comfortable than the meagre offering of the 'Voyager' as I could lounge, sprawl and readjust my position in it at will, the journey itself was tedious along the A1, prolonged as it was by roadworks here and the volume of crawling traffic there. Having also experienced the often sluggish progression on the M1 due to roadworks earlier in the summer, I was left wondering about the expediency of the Royal Mail's recent decision to cease using the railways for speeding the post around the country and instead rely on the far from free-flowing road network.

The legendary Travelling Post Offices, wherein the mail was sorted during the journey, ceased in 2004 but a considerable volume of bulk mail had continued between Royal Mail rail-connected distribution centres in a fleet of special electric multiple units until their withdrawal as life-expired in September. With no money on offer to replace those trains, it seems that 'mail by rail' is finally to become a thing of the past.

Years back, when returning to Manchester from day trips to North Wales, we would walk down the long platform from Exchange to Victoria stations and find it occupied by a lengthy and exciting mail train consisting of, at the front, TPO vans in which the postal staff could be seen busily sorting letters into the racks, with the enticing 'Late Posting Box' facing the platform. The back of the train was made up of parcels vans into which the products of Manchester's considerable catalogue stores were being loaded – carpets, I remember, were recognisable as such and plentiful and I also recall bicycles bizarrely wrapped in brown paper as if to disguise what they were. All the while rakes of trolleys were weaving about the platform delivering more mailbags and miscellaneous packages, all this continuing until the ensemble made its departure for Scotland at around 10.00pm. Also lingering in the memory is the appetising aroma permeating the scene from the nearby Boddington's Strangeways brewery! And that's gone as well, now...

In the late 1980s, following a 'Mail by Rail' exhibition at the National Railway Museum, I was given the opportunity to ride on board the night Newcastle–London St. Pancras 'North Eastern' TPO from York to Derby and return. That was a fascinating world encountered by very few members of this public – a frenzy of seemingly chaotic but actually highly organised activity. Passing through, we came across a couple of chaps asleep on the benches; these, the inspector accompanying us explained, had just finished a 'sort' and unloaded their mailbags at York, and were adept at grabbing a short kip before starting on their next 'sort' at Sheffield. And I posted a card in the 'late' box which received the special TPO franking and was delivered promptly next day! Four or five years ago, whilst on a 'dining' railtour held at Leyland station in Lancashire to await a path to Crewe, two sets of the bright red Class 325 electric units rushed by, one heading south, the other northbound. "The Mail must get through" I observed. And now a very regrettable loss to the railways, I think.

An article this month reveals that the development of the Penny Post in 1840 resulted in a fall of revenue to the Liverpool & Manchester Railway due to the loss of "the lighter sort of Coach Parcels" and by the growing ease and cheapness of letter mail reducing the need for people to take journeys to meet to conduct business when they could use the mail instead. This, of course, eventually led the burgeoning railway network to make increasing provision for the regular conveyance of the Royal Mail in special carriages. Fast forward to present times and today we are told that the trend towards corresponding by email and text is decreasing the amount of letter mail being sent... History does go around, doesn't it?!

*****

The Department of Administrative Affairs now has a few house announcements to make. As you will know by now, the cover price of *Backtrack* has had to rise from this issue. A further consequence of the recent production cost increases is that subscription rates, UK and overseas, must also go up and details can be found on the inside back cover. However, a new UK subscription taken out by 31st January will be available at the current rate of £60.00 – so why not seize the moment while you may?! The general increase in postal prices from last October has also meant that from 1st January the cost of a back issue will be £7.00 per copy and binders £14.00 each.

*****

The coming of the new year means that we can again accept sets of magazines for casebinding and I'm pleased to say that we are able to hold the price from last year – £75.00 per volume. We can arrange to casebind *any* year of *BT,* not just the last one, and orders should be in by 31st March, sent to the PO Box only by Royal Mail parcels. More details of the service can be found at the back on page 62.

Michael Blakemore

Contents

Fowler's Finest . . .? 4
Railways of the North Pennines Lead Mines 6
"The Cheapness of Correspondence" 12
Mixed Trains 17
How Four Became One – Part One 22
The Brighton Atlantics 30
The Great Western's Diesel Railcars 32
Railways and Edinburghshire 36
A Selection of 4-4-0s in Ireland 45
From Hurstbourne and Andover to Kimbridge Junction: The Sprat & Winkle and the Longparish Branch – Part Two 48
2-10-2s In Trouble 54
Tunnels in the Churnet Valley 58
Readers' Forum 61
Book Reviews 62

One of the Great Western Railway's streamlined diesel railcars, No.W14W, stands at Birmingham Snow Hill, smart in the early BR carmine and cream main line passenger livery. (Colour-Rail.com 213079)

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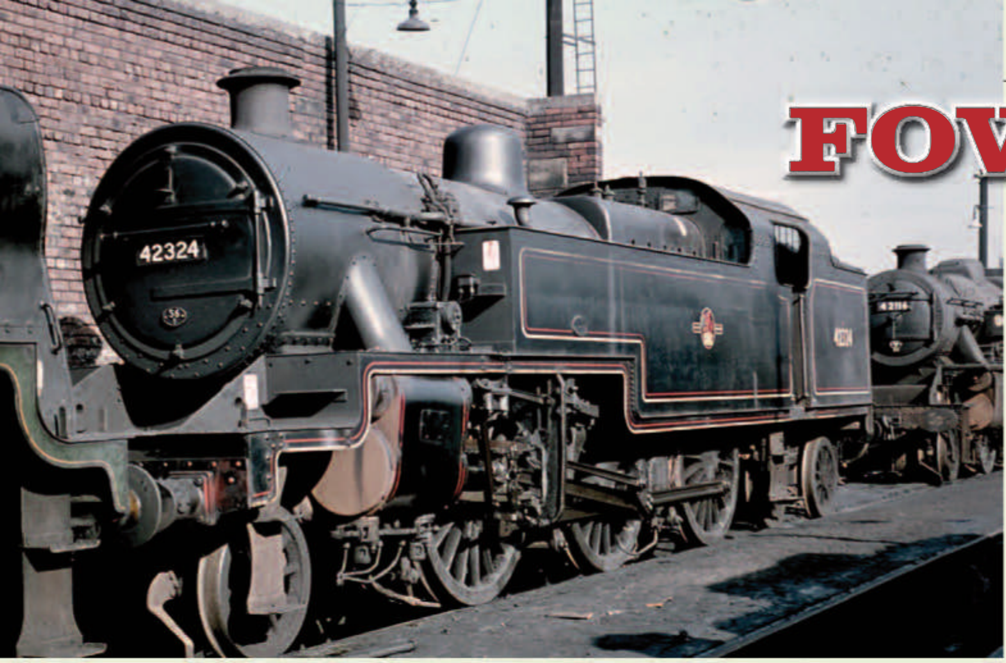
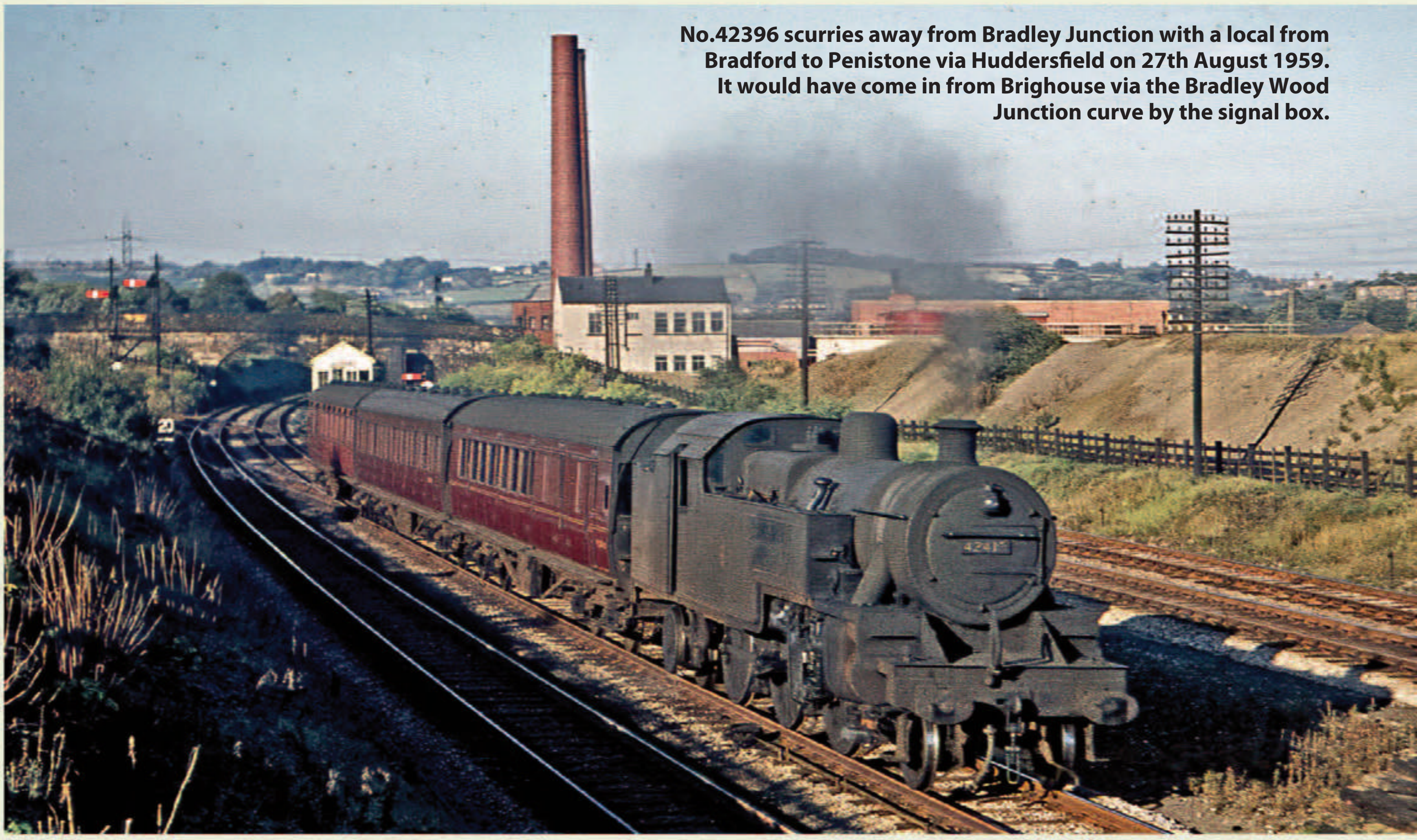
FOWLER'S FI

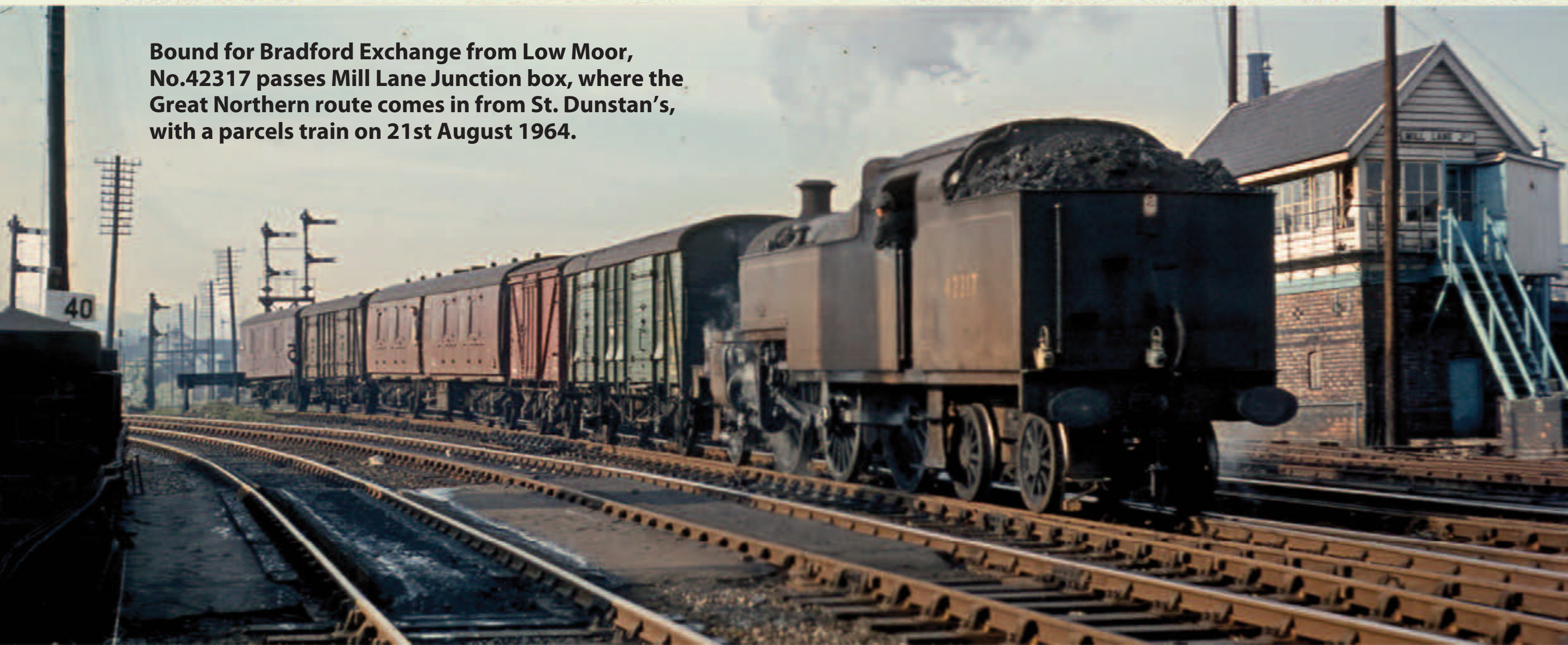
When Sir Henry Fowler took over as Chief Mechanical Engineer of the London Midland & Scottish Railway in 1925 he inherited from his predecessor George Hughes a recent design of 2-6-0 locomotives, the Horwich Moguls (or 'Crabs' to many enthusiasts), and a very fine class it was proving to be. A 2-6-4 tank version had already been thought of and it was left to Fowler to pursue this to fruition. The result was an excellent Class 4 tank with a welcome move at Derby Works to long lap, long travel valve gear, the first of a succession of 2-6-4Ts which, under Stanier and Fairburn, would eventually total 645 engines. These photographs of them are by **GAVIN MORRISON**.



ABOVE: **The first of Fowler's Class 4 2-6-4Ts entered traffic in 1927. No.42324 is outside Bradford's Low Moor shed on 8th October 1961, with the early style of Midland cab but with the later modification of outside steam pipes.**

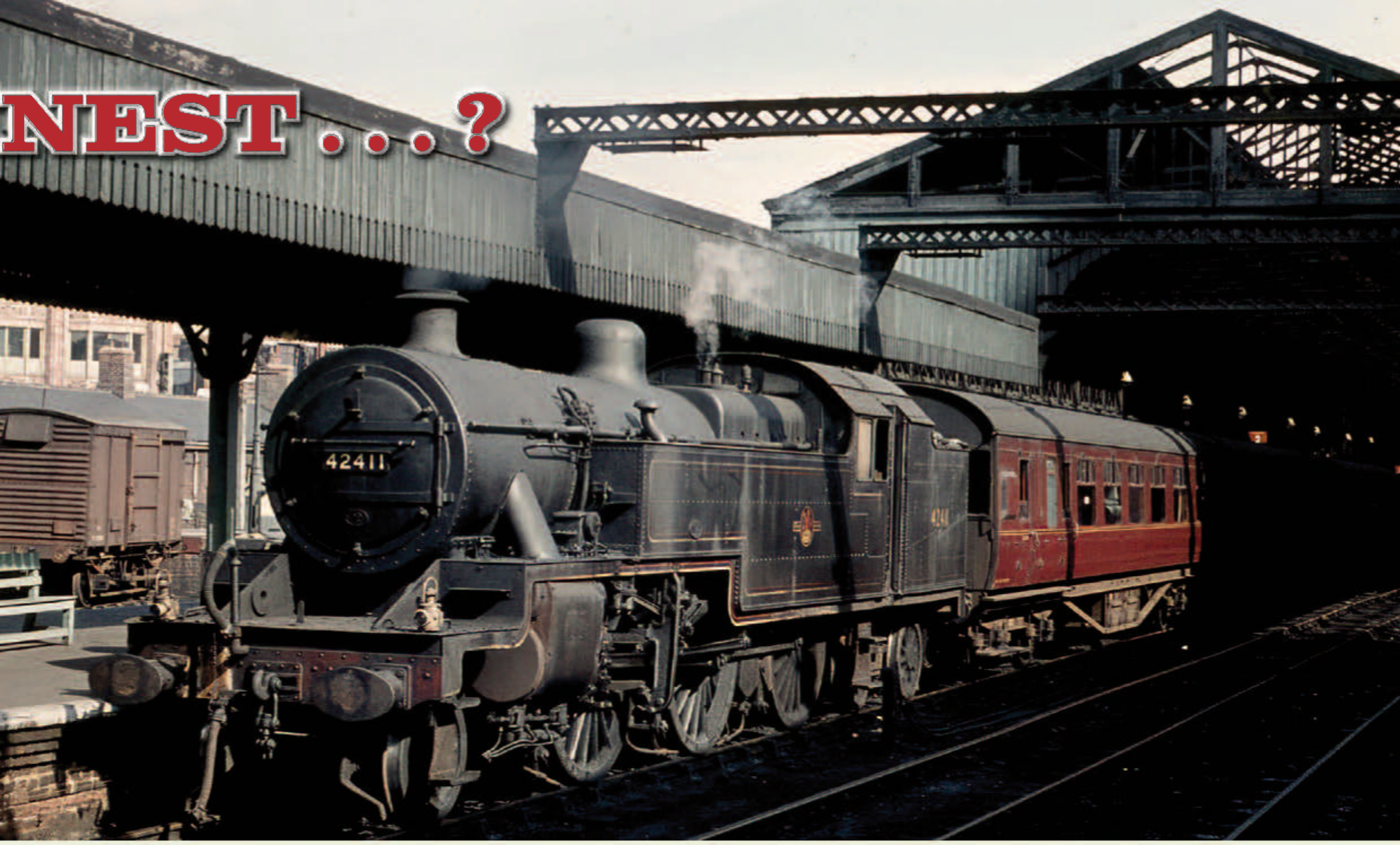


No.42396 scurries away from Bradley Junction with a local from Bradford to Penistone via Huddersfield on 27th August 1959. It would have come in from Brighouse via the Bradley Wood Junction curve by the signal box.



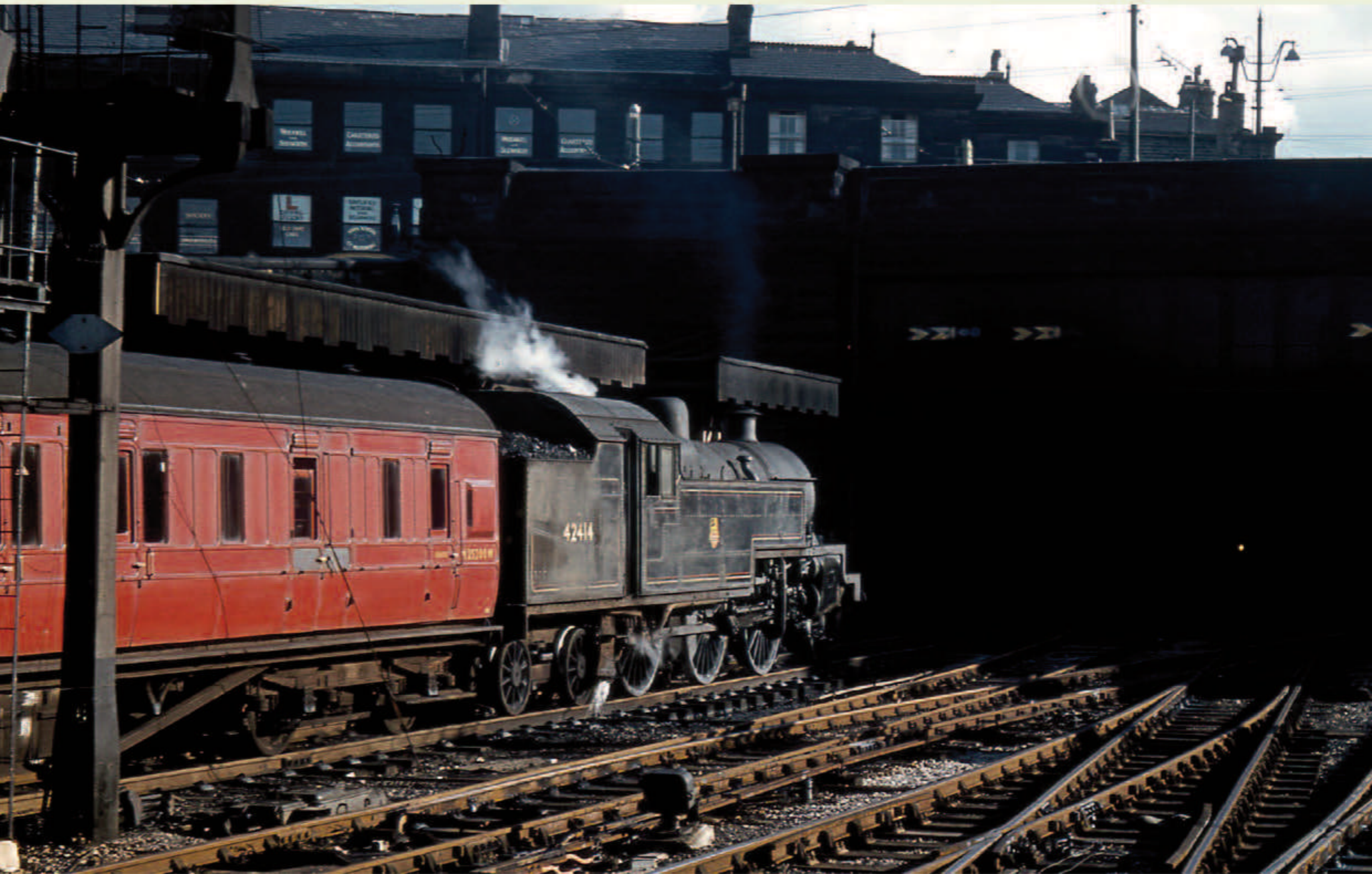
Bound for Bradford Exchange from Low Moor, No.42317 passes Mill Lane Junction box, where the Great Northern route comes in from St. Dunstan's, with a parcels train on 21st August 1964.

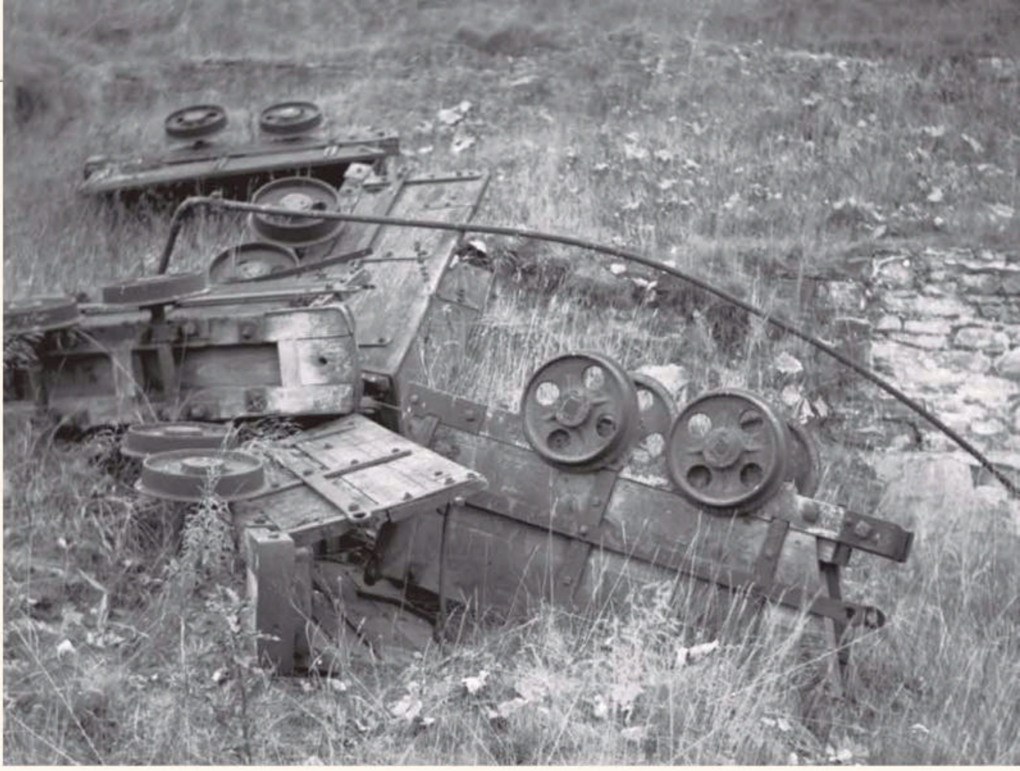
NEST . . . ?



ABOVE: **When William Stanier took over as CME in 1932 he continued with the construction of the well proven Fowler tanks until 1934, though for the final batch he provided them with much improved side-window cabs which later became familiar on the Stanier 2-6-4Ts. One of the last Fowler tanks No.42411 stands ready for action at Leeds City on 23rd September 1960 bearing express passenger headlamps – but they were well known for their turn of speed.**

BELOW: **The Fowler 2-6-4Ts were a success from the start and totalled 125, with the last withdrawals not occurring until 1966. Unfortunately none survived into preservation. No.42414 stares into the inky blackness of Huddersfield Tunnel with a westbound local service on 15th July 1958. The environs are decidedly smoke-blackened, with the office windows of the chartered accountants and the driving school up on the road doubtless needing frequent cleaning; at least the distant signals stand out. No.42414 resided at Huddersfield shed from nationalisation until 1961 when it quit all this and headed out into the Westmorland hills at Tebay to finish its career banking trains over Shap.**





Remains of Beaumont-type lead waggons at Bolts Burn.

RAILWAYS OF THE NORT

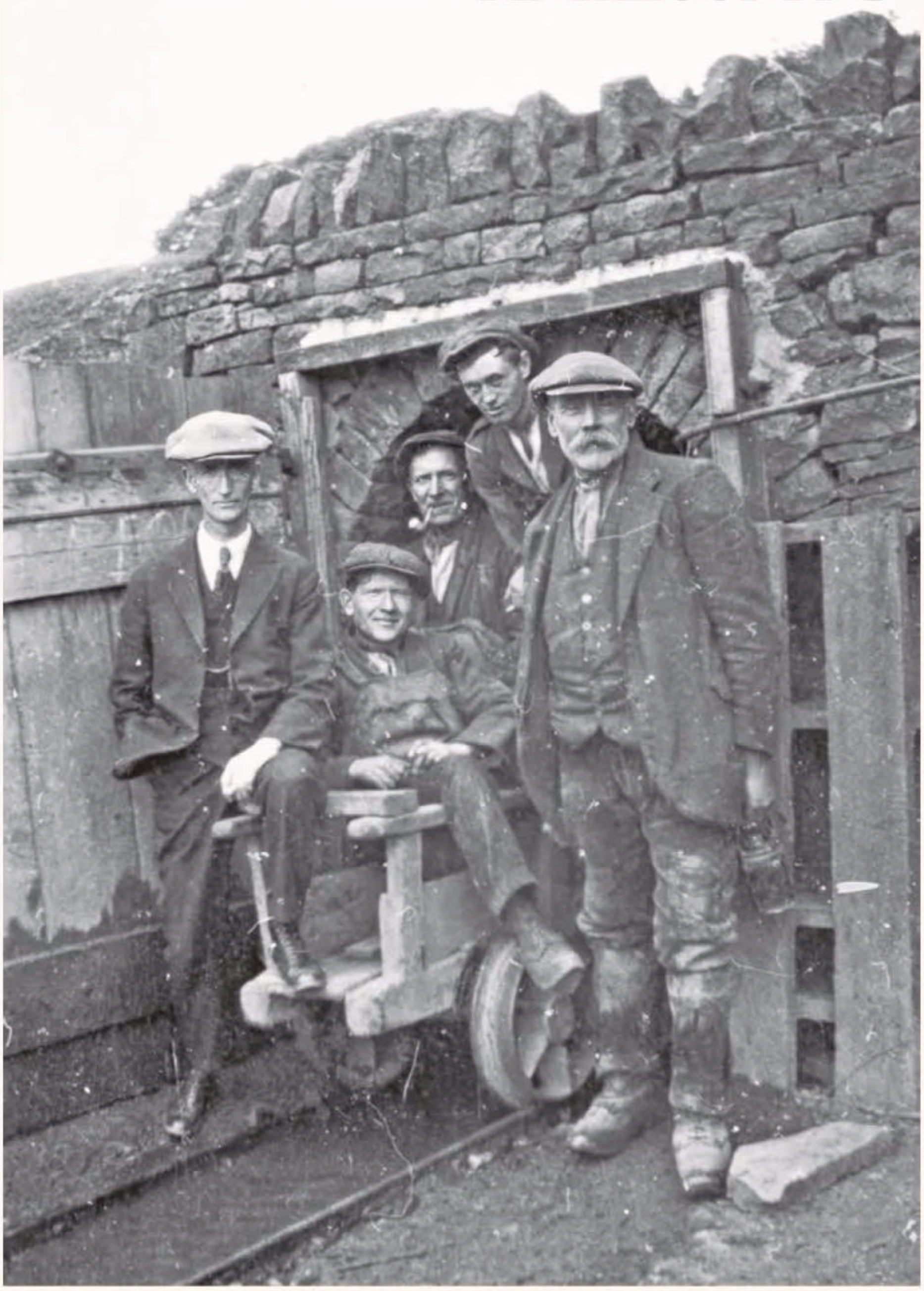
BY ROB LANGHAM

Photographs from Beamish Museum

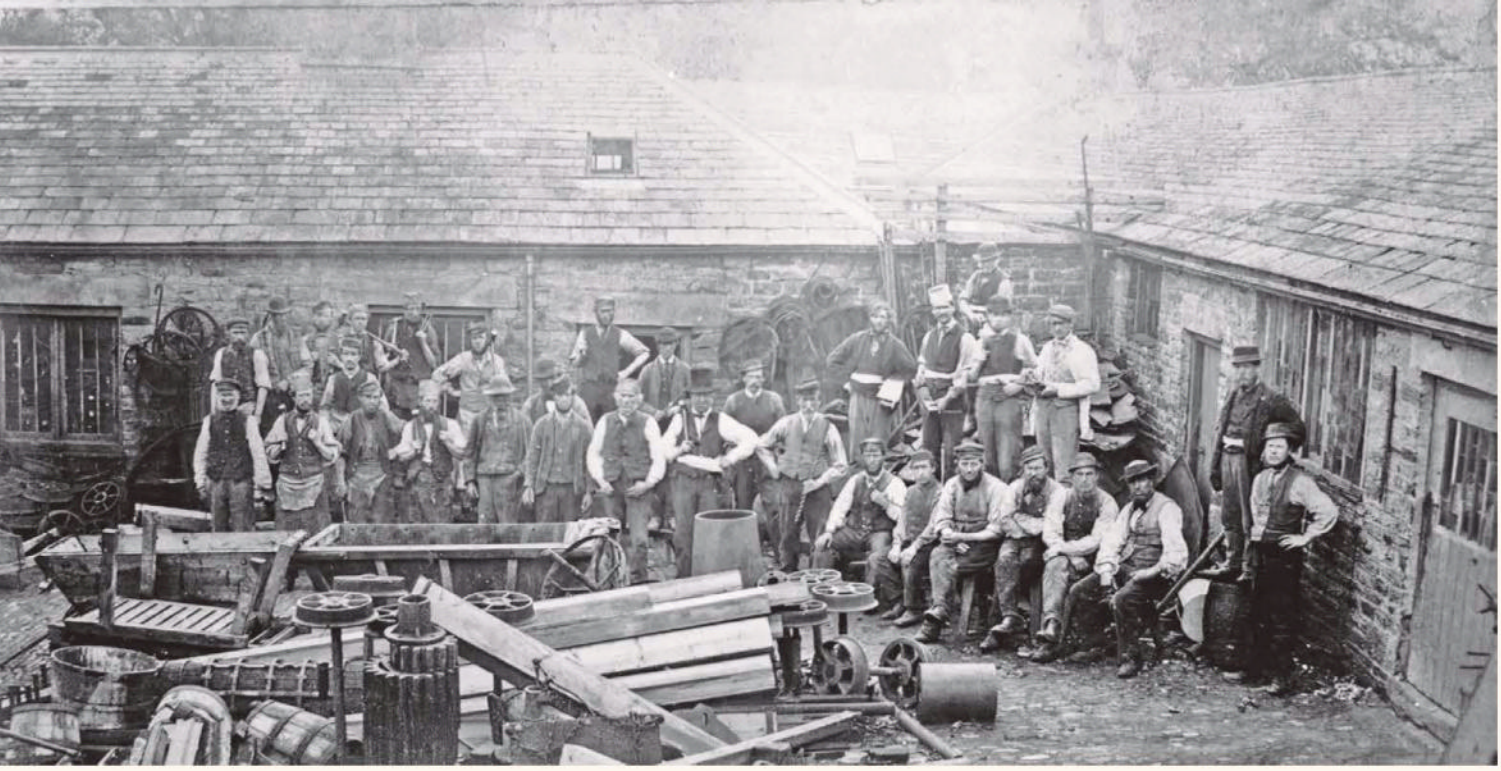
Scattered around the North Pennines of England, between the North East and Cumbria with the Tyne Valley at its northern limit and the Stainmore gap to the south, can be found occasional evidence of narrow gauge railways. Far from the standard gauge lines which wound their way along the bottom of dales, following rivers towards terminating at market towns in the nineteenth century, light gauge rails can be seen lay exposed or used in walling/fencing, as distinct trackbeds in remote areas, or the occasional item of narrow gauge rolling stock. These include a man rider vehicle by the side of the road, mining tubs used as village displays, or in one instance the body of a skip wagon halfway down a spoil tip, no doubt abandoned there after it fell off the rails whilst being unloaded many years ago. These give clues to the presence of railways used at lead mining sites across the area. The lead mines still mark the North Pennines landscape in other ways, with evidence of wheel pits, buildings either repurposed or left ruinous, and shafts and level entrances still to be found in abundance. Whilst the use of railways constituted very little above-ground mileage on their individual sites, cumulatively, the narrow gauge lines used at lead mines have left an interesting record both physical and photographically of the systems used to serve the mines, most of which were worked by men and horse only.

This article may seem sporadic with the occasional brief information relating to one mine and more detail relating to others, which in an accidental sense mirrors the use of railways at the lead mines themselves.

To understand the context in which railways were used in lead mining in the North Pennines, a description of the mining itself is necessary, which was unlike that of coal mining which readers may be more familiar with. In coalmining, where the mineral brought out the ground is fit to be sent to market (after screening for any stone etc), lead is processed before it can go to the buyer. Coal tends to exist in horizontal seams of a certain thickness, meaning that as coal nearer the surface was extracted and worked out, shafts descending vertically underground to reach the deeper seams was the best method of extracting. Lead seams, termed veins, varied from centimetres to metres wide and at their greatest, several miles long and to hundreds of metres high. They ran vertically, usually sloping to some extent, being described as ‘long buried walls’. This meant extracting the lead ore was different to that for coal and could be quite haphazard, miners working vertically on wooden boards within the mine. Extracting the lead ore, rather than using a deep shaft, was usually done by what in coalmining was



Timber bogie at Nentsberry lead mine, the men in it are named as Watty Wally to the front with Ralph Gibson at the back.



H PENNINES LEAD MINES

The workshops of the London Lead Company at Middleton-in-Teesdale.

termed a drift, but in lead mining a 'level', a near horizontal tunnel from the surface with other tunnels leading off to reach the veins – although shafts were also seen. Lead mines could be wet and the levels assisted in drainage, sometimes with the assistance of waterwheels located underground using water power to work a pump, to move a greater quantity of water out, with hydraulic pumps pioneered by William Armstrong introduced in the nineteenth century.

This rich resource had been tapped in Britain since the Roman times and although it is believed they had mined for lead in the North Pennines, definite evidence for it begins in the medieval era. Early mining for lead was similar to that for coal, shallow pits accessed from a shaft at the surface with the lead ore winched out, with the risk of roof falls. Another form was that of 'hushing', where dams were made at the top of a vein, water gathered and then released to wash away the ground again and again, likely aided by tools such as picks and spades, and potentially gunpowder, until the vein was exposed. These artificial valleys can be seen across the lead mining landscape.

As the veins became harder to reach, underground workings lengthened and levels were created. A tunnel was worked in from the surface, on the level, working into the side of a hill and usually cutting across veins which would then be worked at angles to the main level. The level would be worked by horse, pulling small waggons referred to as tubs. The mineral removed from the vein is galena – lead ore.

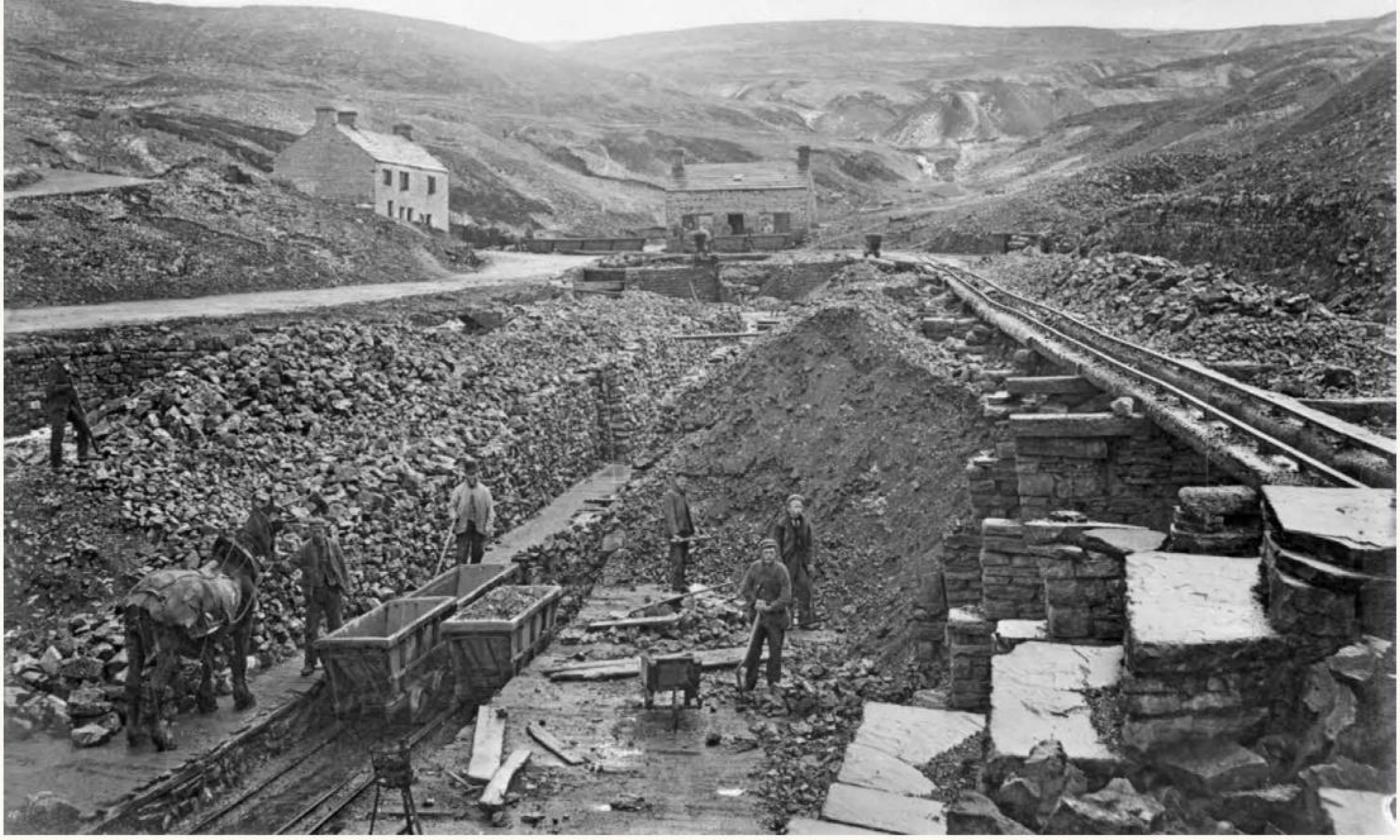
Lead miners in the area operated in small teams known as 'bargains', as these were paid per amount of lead. After being brought out of the level, the galena was dropped into bouseteams or bousteads, similar to coal drops prevalent across the North East's railways. These ensured each 'bargain's share was kept separate. To separate the lead from the surrounding unwanted material, or waste, which included fluorspar, calcite, and limestone from the walls which surrounded the lead veins, the galena was washed in pans, similar to that done with gold-panning. With lead being significantly heavier than the other materials, it eventually separated from the waste. This was originally done by children, breaking up the ore first by hand, although later mechanical crushers were used. The main source of power for the crushers was water – large above-ground waterwheels being used with 'races' funnelling the water down from reservoirs on higher ground. It was common to see the above ground waterwheels boxed in, which prevented them freezing up in colder weather or being moved when not desired by the high winds which are common in the area. Rails were used along the levels and outside the mines to the bouseteams, possibly used further depending on the size and scope of the mine, for example moving waste product to spoil tips.

The lead was then taken to a smelting mill. Sometimes this was close by the mine itself, sometimes miles away. By smelting at high temperature with coal, the lead ingots or other lead products were created and then ready for the buyer. Smelters often had long flues, which were near-horizontal chimneys which ran up hillsides and culminated in a vertical chimney high up on the moors. Amongst other benefits, the long chimney meant the small amount of lead that was vapourised in the smelting had a chance to condense and gather on the inside walls of the flue as dust, which periodically would be collected. Working in or near a lead smelting mill was not advantageous to one's health. Any use of railway depended on the size of the mill and its location to mines – usually transport was by horse transport, either by packhorse or cart. Owing to the terrain and distance, pack horses following routes over the moors to the nearest mills were used until improved roads in the early nineteenth century allowed two-wheeled carts pulled by heavier horses to be used. From the mills, the lead ingots were then taken further – in the case of the Blackett-Beaumonts, to the riverside wharf at Blaydon-on-Tyne.

In the North Pennines in the nineteenth century, lead mining was dominated by two concerns – the London Lead Company, a Quaker concern which had a large workshop at Middleton-in-Teesdale and focused its mines in Teesdale and Allendale, with some in Weardale, and the Blackett-Beaumont family who focused their work in Weardale and Allendale. When the Blackett-Beaumonts gave up their leases in the 1880s following a sharp decline in lead prices, the Weardale Lead Company took over much of their mines.

The design of wagons was stipulated by the dimensions of the tunnels. The ornate stonework level entrances, and tunnels within, were a distinctive horseshoe outline, giving a clue as to the reason for the shape – the minimum required for the passage of horses to move the wagons, with the widest part at shoulder level. Owing to the cost and time taken to tunnel, usually into rock, the levels and their entrances were kept as small as possible, often tapering downwards with a curved ceiling. Subsequently the wagons were thin, barely wider than the gauge they were on, in a hopper shape wider at the top, usually with bottom emptying doors – similar in appearance and operation to the chaldron and hopper wagons used across the North East on standard gauge lines. Coal mines were low but wide, meaning their underground waggons were a different design.

By the late eighteenth century waggons were in use, with a description from 1770 of waggons being similar to those used on the Newcastle waggonways but smaller and at two foot gauge, a horse puling two at a time. In 1833 a description of waggons used in the North Pennines stated them as "the bottom is a trap for letting out the contents, but some are made to cant or turn up like a common cart", with the inside length at the top being around six inches, reducing to four feet and four inches at the bottom, and width at the top of 1ft 6in reducing to 10in at the bottom. The description and measurements match those of the London Lead Company waggons that are seen replicated at Killhope museum and



Overview of the substantial overground set-up at Smallcleugh, Nenthead. Tubs are being loaded from the bouseteams with lead ore (galena) to then be washed.

seen in old photographs used in this article, albeit in 1833 they were made of wood with iron wheels. Increased use of iron, including iron sheeting for the body of the hopper, more durable against the lead ore, was later made in their construction. A similar in appearance end-tipping type, with wheels offset to make the tipping easier and the sloping end at one end only, with the door at the straight end, is thought likely to represent the type used at the Blackett-Beaumont-owned mines. A wooden-bodied tipper waggon design was used at a few sites, similar in appearance to those used at other sites but with the body itself hingeing at one end of the wooden chassis.

A curious waggon, again built to a hopper shape and made of wood, and running on rails, was the 'vogue'. What made the 'vogue' unusual is that it only had one set of wheels, with the single axle offset from the centre of the waggon, and the two-wheeled waggon pulled by a man. They seem to have mainly been used in the late eighteenth century, falling out of use likely by the 1820s. In more recent years, waggons used at Coldberry mine when it reopened in the 1950s were more similar in appearance to those used in coal mines, with a metal body on metal chassis, with an end door released by a lever on the rear and the whole waggon tipped to empty its contents.

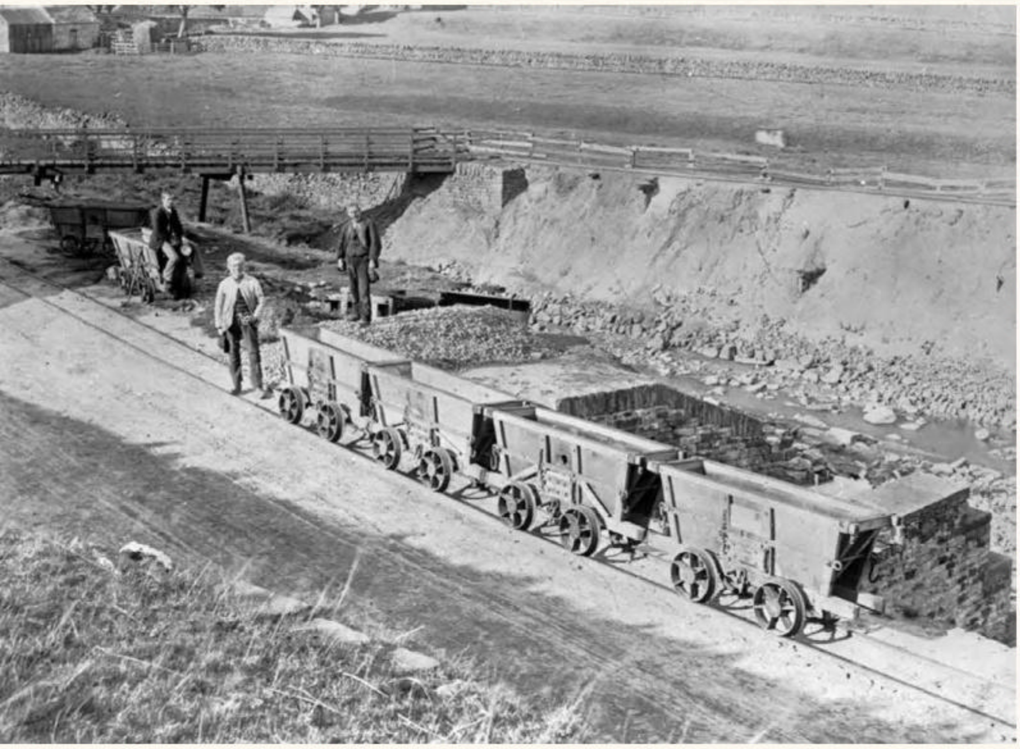
Gauges varied but generally seem to have been between 18 and 24 inches. Wooden rails were used for many years but, again echoing standard gauge practice, cast iron and malleable iron rails were introduced, including fishbelly rail, fixed on iron chairs to wooden sleepers. With the predominance of man and horse haulage, the railway system did not have to be as well made as on the standard gauge and single switch rails were also seen for use on points.

The existence of long-distance mineral traffic, if not for the isolated locations of the mines and difficult terrain to reach them, would have been ideal for rail transport. The Stanhope & Tyne had reached into the tip of Weardale in 1834, and there is some contemporary description of lead traffic on the line, including mention of a 'Directors Special' on the Stanhope & Tyne sometime in the 1830s, which comprised "a couple of the low flat waggons used for the transport of lead and known as 'lead bogies'."[1] Other mention of lead traffic on the line comes from a description of the Hownes Gill inclined planes which preceeded Thomas Bouch's viaduct of 1858. This account mentions that traffic could include "lead or lime, proceeding from Stanhope in the western district".[2] A few years later, during the Derwent Iron Company's running of the western half of the Stanhope & Tyne shortly before its takeover by the Stockton & Darlington Railway, guests of the iron works were surprised to "see waggons laden with lead, the produce of the Silvertongue mine, descending from the opposite side, and rising to the platform on which they stood".[3] There were lead mines in Stanhopeburn, reached by a horse-drawn tramway from the Stanhope & Tyne's limestone quarry at Crawleyside, together with a smelting mill. The output here varied. In 1854 it apparently "broke all records" and exported to France and the USA, but had large highs and lows in terms of output until by the end of the nineteenth century it had been quiet for years.

The Weardale Lead Company relaid much of the route of the original horse-drawn railway in the 1900s with a 2ft 6in gauge track run by Weardale Lead Company No.1, a Black Hawthorn 0-4-0ST which had previously worked at Groverake and was at some point named *Little Sally*. The company reopened the lead mine in Stanhopeburn and unloaded the narrow gauge tubs into standard gauge North Eastern Railway wagons at Crawleyside for transport up the former Stanhope & Tyne's Crawley and Weatherhill inclines and onwards from there. *Little Sally* worked until 1930 when a reduction in traffic meant horses were used and *Little Sally* was scrapped in its shed in 1937. Stanhopeburn later reopened again for fluorspar, with buildings from this activity sitting alongside earlier remains.

The Stockton & Darlington Railway, which took over the Stanhope & Tyne line to Crawleyside in 1845, entered Weardale proper under the guise of the Wear Valley Railway. This arrived at Frosterley in 1847 and Stanhope in 1862, but not getting to Wearhead until 1895, too late for the majority of lead mining in the area. The Bishopley branch which split off from the Wear Valley Railway near Frosterley to serve the quarries to the south of the line was, by 1858, within half a mile of the Bollihope lead smelter. This was close to the Cornish Hush mine and Whitfield Brow crushing mill which was also linked to the smelter by a narrow gauge line, which may have been relaid to standard gauge when the railway reached here, but by this stage lead mining in the area was in decline.

The arrival of standard gauge railways on the peripheries of the lead mining areas did assist with the long-distance movement of lead. In 1852 the Alston branch of the Newcastle & Carlisle Railway, which started at Haltwhistle, reached its southern terminus, within reach of the substantial mines at Nenthead and Killhope. In 1868 the Allendale branch from Hexham opened to mineral traffic, although stopped a few miles short of its intended destination of Allendale town. In the same year, the opening by the South Durham & Lancashire Union Railway of the line from Barnard Castle to Middleton-in-Teesdale did tap traffic of the London Lead Company for over 30 years, with quantities of "refined lead… also labouriously conveyed by teams of strong Galloway horses all the way from Wearhead over specially constructed mountain roads to the railhead at Middleton, where there was a sizeable yard for mineral traffic. Until about 1880 similar teams trundled over the lonely fells from the Bollihope lead smelter".[4] By the 1860s, however, the price of



Lead waggons at Bolts Burn lead mine, with small side doors.

lead was rapidly dropping, with the high cost of transport further reducing its profitability for those involved.

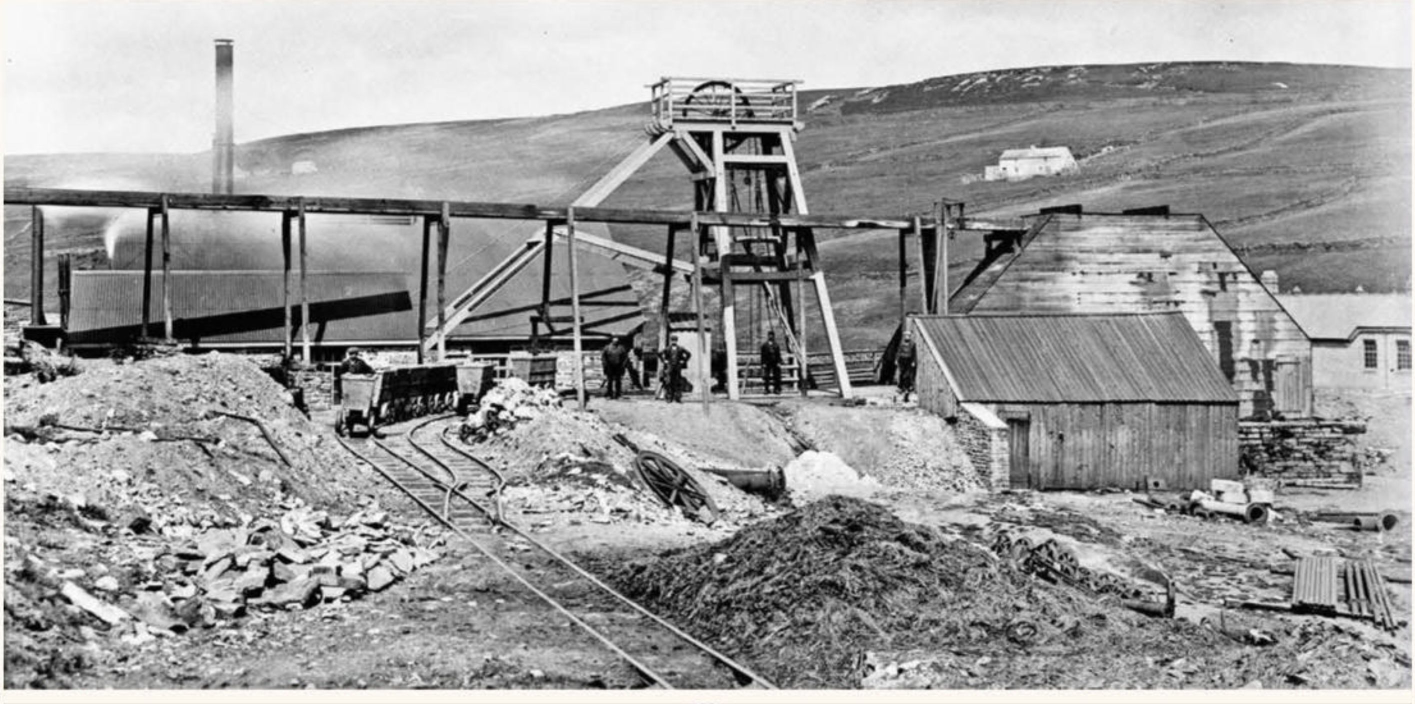
The Weardale Iron Company's industrial Weatherhill & Rookhope Railway did, however, serve some lead mines which were used for other purposes also, particularly those along the Bolts Burn in the isolated Rookhope valley (Rookhope itself meaning valley of the rooks (crows)). Opening in the early 1850s from Parkhead on the Stanhope & Tyne, and via the stationary engine-worked incline plane at Bolt's Law reaching the village of Rookhope and extending along the northern sides of the Weardale valley in various directions, one branch continued west of Rookhope along the Rookhope valley towards Groverake. This passed Bolts Burn lead mine and the Lintzgarth smelt mill which smelted all lead in this valley, and although the main focus of the Weardale Iron Company's standard gauge line was iron ore, lead traffic was also moved, especially from the smelt mill.

The Weardale Lead Company took over numerous lead mines in the Rookhope Valley in the 1880s and built a 2ft 6in line, worked by an 0-4-0ST built as Works Number 981 by Black Hawthorn of Gateshead in 1889. This locomotive, No.1, is the one later named *Little Sally* and moved to Stanhopeburn. The line ran from Groverake eastward towards Rookhope on the opposite contour of the valley to the Weardale Iron Company's standard gauge line, but at Wolfs Cleugh it headed south to the mine at Rispey where there was also a dressing site (a later development of washing the ore), and from there lead ore was taken by horse cart to Lintzgarth smelt mill, before onward movement on the Weardale Iron Company's line. From there it was transferred on to the main railway network at Parkhead station on the former Stanhope & Tyne, where the Weardale Iron Company split off. In 1913 there was 3,698 tons of lead traffic at Parkhead, which had come from Rookhope. Bolts Burn lead mine was revitalised in 1907 and was provided with a 1ft 10in gauge line with a Hawthorn Leslie 0-4-0ST, No.2, named *Little Nut* (apparently owing to its 'sweetness', as well as its size) to move traffic to Lintzgarth smelt mill in 1913. The mine and smelt mill closed in the 1920s but the arch carrying the flue over Bolts burn is still visible and known as the 'Rookhope Arch', also the remains of the flue continuing to extend up to higher ground. The Weardale Lead Company acquired a battery locomotive in 1922 for underground working and, with the emergence of the need for fluorspar, the company found itself a new source of work which it successfully exploited for many years.

Perhaps the best-known locomotive used in lead mining, owing to its splendid recreation at Beamish Museum by engineer David Young, is the Stephen Lewin & Co. of Poole, Dorset, 0-4-0WT *Samson* of 1874, a single-cylinder locomotive built to 1ft 10in gauge. Built for the London Lead Company and used at its Cornish Hush Mine at Bollihope, Weardale, the engine was described in *The Engineer, Engineering and Mining Journal* as "a small geared tramway engine for the working of narrow gauge tramways, in the place of horse labour, designed by Mr. S. Lewin, of the Poole Iron Works, Dorset. The design is very simple, and it certainly possesses very many advantages over the double cylinder direct-acting loco for small powers. It is not so complicated, and the whole of the working parts are kept well up out of the way of dirt or any obstructions, while the gearing is very strong and of cast steel, rendering it very durable and not liable to injury. The engine can be easily handled, and no difficulty is experienced from the engine getting on its centres".

The customer was said to have described it "as a substitute for horse labour the engine

Bolts Burn lead mine showing the headgear for working the shaft and the boxed-in water wheel.



Typical of the small lead mines dotted around the North Pennines, this is the entrance to Flushiemere lead mine in Teesdale.

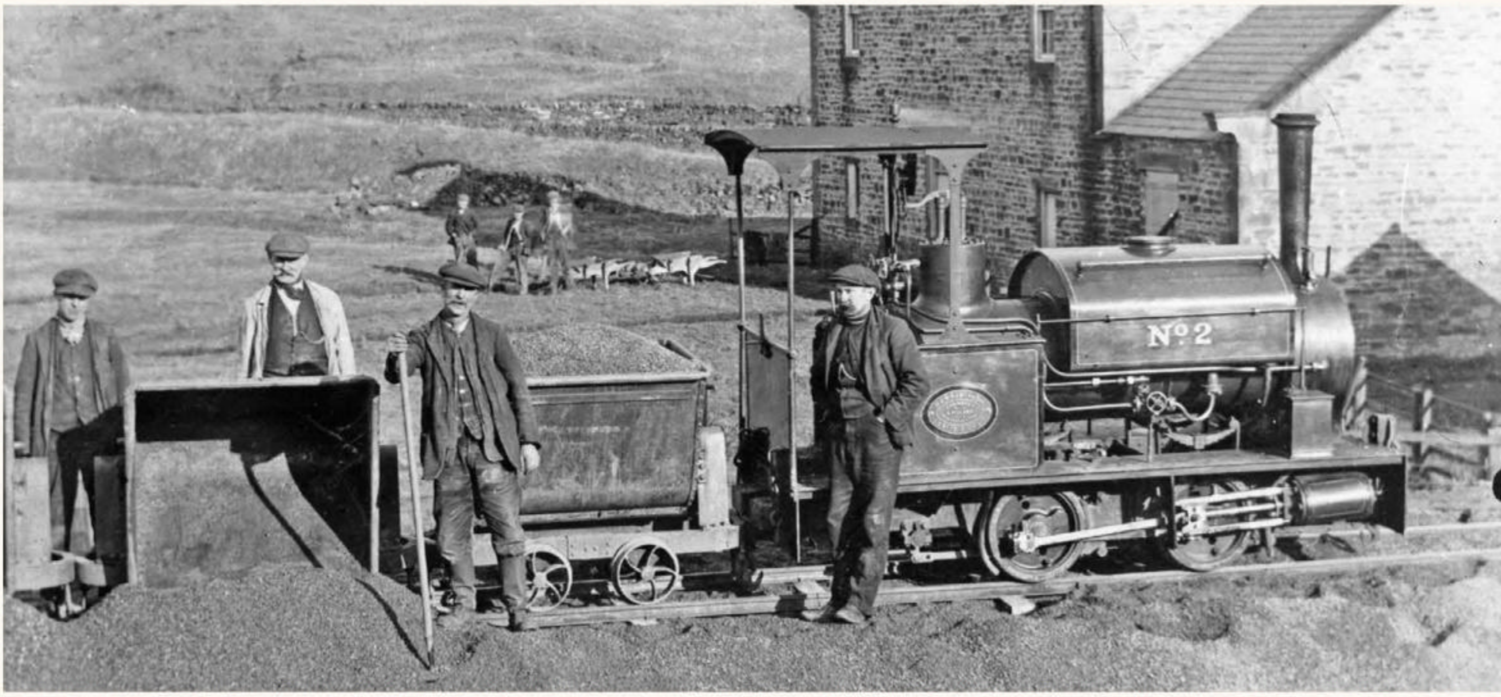
is answering its object most satisfactory”.[5] *Samson* ran on a mile-long line from the Cornish Hush Mine, which still exists as a significant gouge in the landscape from the hushing, over a significant embankment and then along a ridge on the hillside on a contour at 1,300ft above sea level which for the most part is still *in situ,* terminating at the head of an incline which – again still extant – took the lead down to the Whitfield crushing mill. A small branch also served a level entrance which is still in existence. The nearby Bollihope lead smelter then processed the lead from here and other nearby mines. Little is known about this line – by the time of the Second Ordnance Survey map of the area, the line is mostly removed and the crushing mill closed, and had not been built by the time of the first survey. The London Lead Company had given up the leases to the mine in 1883, suggesting a very short service life, at least here, for *Samson,* which is later known to have been removed from the London Lead Company’s workshops at Middleton-in-Teesdale for scrap via the North Eastern Railway branch in 1904 – a year before the company closed. This raises the potential of its use elsewhere or perhaps as a stationary workshop engine.

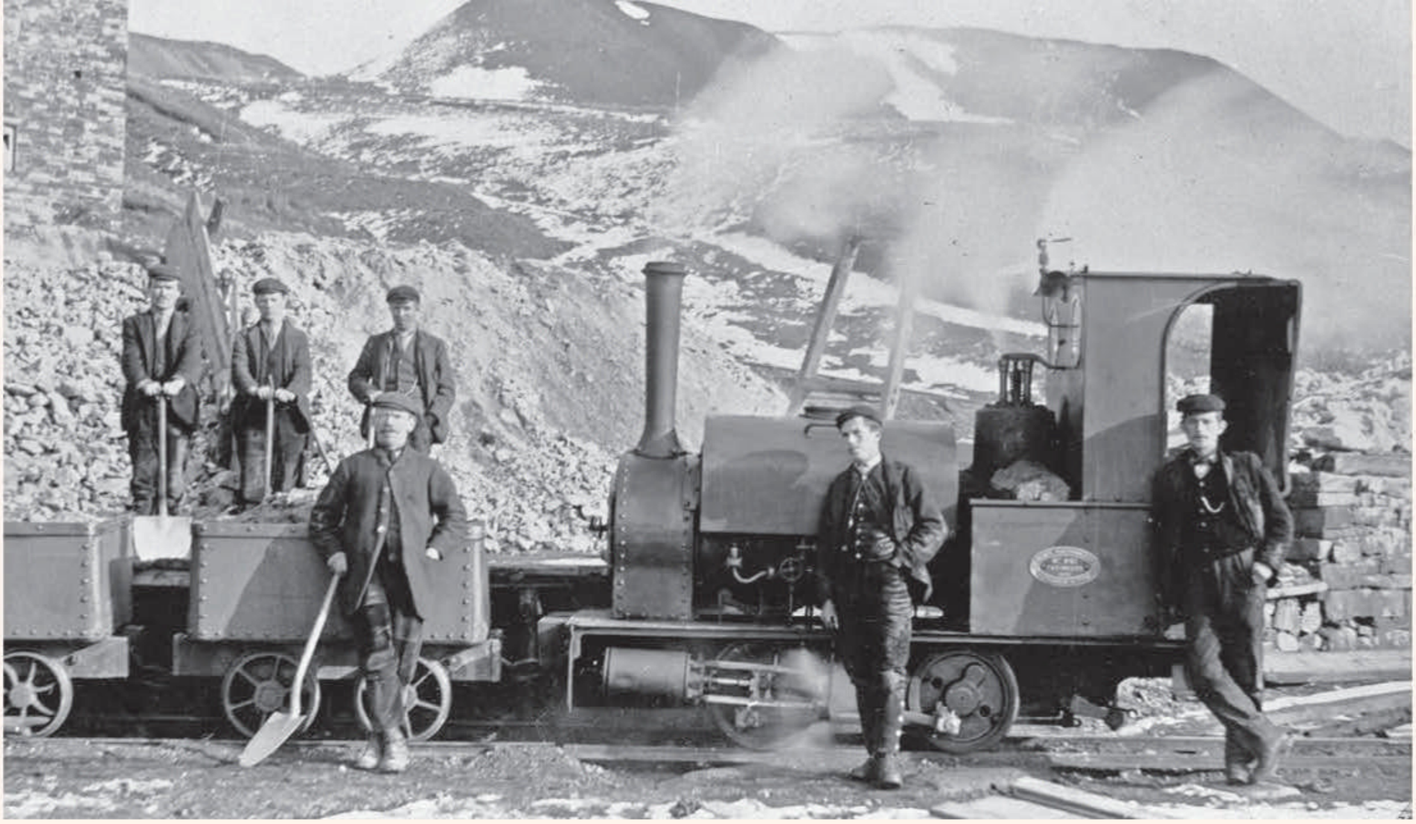
Lead mining in the North Pennines, and elsewhere in the country, started to reduce in activity in the latter half of the nineteenth century. The Blackett-Beaumonts started to reduce operations by 1865 and had mostly stopped by around 1890, with many of their mines taken over by the Weardale Lead Company. The London Lead Company managed a little longer, winding up in early 1905.

The London Lead Company stopped working its Coldberry Lead Mine in the 1900s after 90 years, although it was later worked intermittently by others. Amongst these was the Coldberry Lead Co.Ltd. which reopened it in 1952. Amongst the investment made by the new owner were two new Hunslet 0-4-0 diesel-mechanical locomotives, one built in 1954 and the other 1955, to work underground and on a short above-ground section of around 200 yards between the North Level and the ore dressing mill. Unfortunately, their improvements were in vain and after producing around 5,000 tons of lead concentrates, the price of lead dropped after the Korean War and the mine closed in 1956. One of the Hunslets was sold for scrap but the other sold to the Weardale Lead Company, it working at the Stotsfield Burn Mine in Rookhope. A similar closure then reopening story is that at Lady’s Rake Mine in 1902, the last London Lead Company mine to be worked, with the lease reverting to Lord Barnard who kept it in good condition, and the lease was taken over by the Teesdale Mining Company in 1905. With the London Lead Company having closed, and its smelters with it, it was now necessary to take the ore itself by road to Middleton-in-Teesdale and moved onward by North Eastern Railway for smelting elsewhere. To do this, a Sanderson petrol motor tractor was used, a curious, early three-wheel design which hauled what appeared to be a conventional horse-drawn cart loaded with the ore. This company went into liquidation in 1909.

The Weardale Lead Company, formed in 1883 to take over much of the Blackett-Beaumont mines, went into liquidation in 1900, although a new company was formed that very day with the same name. They had started to mine for fluorspar (fluorite), which is used as a flux in steelmaking as well as for other purposes, by the end of the nineteenth century, which had originally been treated as a waste product. This kept the company in operation after the cessation of lead mining by it in the early 1930s and when fluorspar mining increased in the 1960s it became a subsidiary of Imperial Chemical Industries, later being taken over by Swiss Aluminium Mining (UK) Ltd. The rise in fluorspar mining saw older lead mines reopen and waste tips worked through for easily accessible fluorspar, with narrow gauge battery-electric locomotives and rolling stock including man riders, of which a

Weardale Lead Company No.2 ‘Little Nut’.





Black Hawthorn 0-4-0ST Weardale Lead Company No.1 of 1889 at Groverake lead mine pre-1909.

few can still be seen in the area, operating until recent decades.

Remnants of the lead mines and their railways can be seen in abundance throughout the area, many not far from the main roads. The lead mines at Killhope and Nenthead in particular are well preserved and open to the public, Killhope featuring several replicas of London Lead Company-style waggons. In the Rookhope valley, the tall steel headgear at Groverake (moved here from a coal mine) which was in operation for fluorspar mining until the 1980s stands as an impressive monument to mining in County Durham as a whole. Beamish Museum has the replica of *Samson* and the trackbed it ran on near Bollihope can still be discerned and walked on. As with other mines, there may be all manner of interesting narrow gauge relics lurking beneath the ground…

References

1. *The Shields Daily Gazette and Shipping Telegraph,* 25th July 1899
2. Granville, A.B., *The Spas of England, and principal sea-bathing places – Northern Spas* (London: Henry Colburn, 1841) pp309-12
3. Douglas, W., Local Collections; or, Records of Remarkable Events connected with the Borough of Gateshead (Gateshead: Observer Office, 1843) pp.133-4
4. *The Railways of Weardale,* p2
5. *The Engineer, Engineering and Mining Journal,* 13th January 1875

Bibliography

Atkinson, F., *North East England People at Work 1860-1950* (Moorland Publishing: Ashbourne, 1980)

Lees, E. & Wear, R., *Stephen Lewin and the Poole Foundry* (Industrial Railway Society & Industrial Locomotive Society: Wellingborough, 1978)

Fairbarn, R.A., *British Mining No.54 Lead Mine Waggons* (The Northern Mine Research Society: Keighley, 1995)

Fairbarn, R.A., *The Mines of Upper Teesdale* (Raymond A. Fairbarn: Hexham, 2009)

Fairbarn, R.A., *Weardale Mines* (The Northern Mine Research Society: Keighley, 1996)

Holroyde, D. & Mountford, C.E., *The Industrial Railways & Locomotives of County Durham, Part 1* (The Industrial Railway Society: Melton Mowbray, 2006)

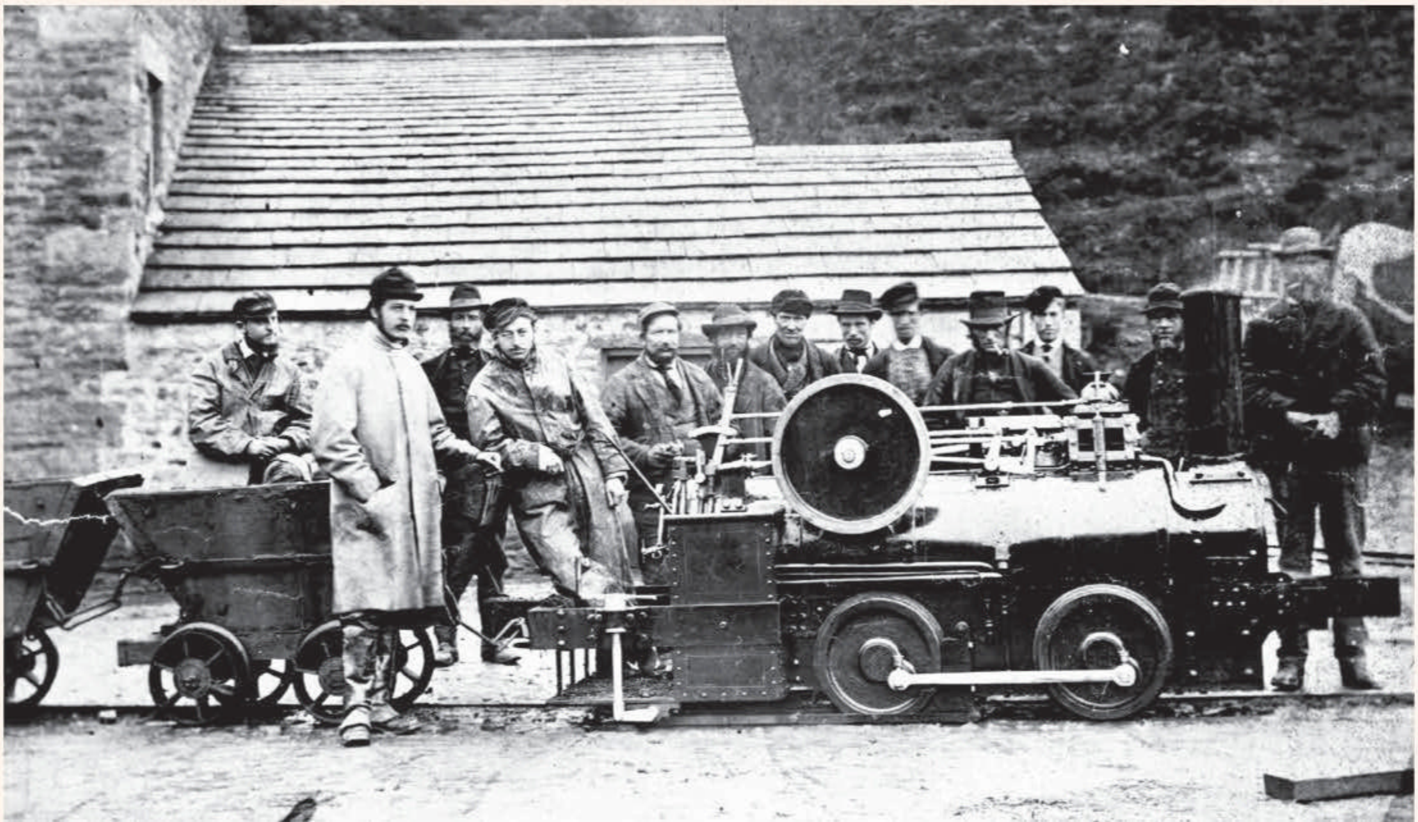
Raistrick, A. *Two Centuries of Industrial Welfare – The London (Quaker) Lead Company 1692-1905* (Kelsall & Davis: Otley, 1988)

Rounthwaite, T.E., *The Railways of Weardale* (The Railway Correspondence & Travel Society, 1965)

Whittle, G., *The Railways of Consett and North-West Durham* (David & Charles: Newton Abbott, 1971)

Lewin-built locomotive *Samson* at the Cornish Hush Mine.

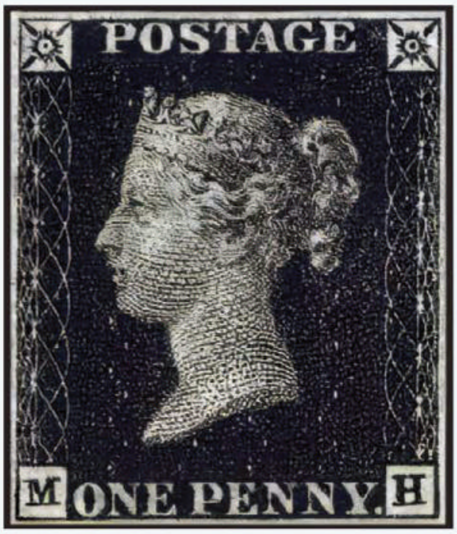
(All photographs by courtesy of the Beamish Museum)



“THE CHEAPNESS OF

HOW THE PENNY BLACK POSTAGE STAMP ROB

JAMES GRAHAM reflects on the circumstances which drew the early railways into the carriage of the post.



The world’s first stamp that kicked off the postal revolution.

The Liverpool & Manchester Railway (L&MR) launched services on the first inter-city railway in the world in September 1830. As a commercial enterprise intended to create wealth for its owners and shareholders, it set out to raise revenue from merchandise shipping and passenger services between two of England’s most important and commercial towns. Goods traffic was to include coal and aggregate loads, farmyard cargoes such as manure and wool, raw materials such as bales of cotton from Liverpool Docks to Manchester factories and finished goods on the way back out of Manchester to Liverpool for shipment around the world. Passenger traffic was to be handled by purpose-built carriages for all classes of travellers.

At the launch, the range of original shareholders had seen people from all over the United Kingdom get hold of shares. In Liverpool 172 people bought 1,979 shares; in London 96 took 844 shares; in Manchester fifteen with 124, 24 others with 286. The Marquess of Stafford held 1,000, making 308 shareholders with 4,233 shares.

The directors of the railway were responsible to the shareholders for the direction, planning and profitably of the enterprise. The original promoters are usually acknowledged to be Joseph Sandars, a rich Liverpool corn merchant, and John Kennedy, owner of the largest spinning mill in Manchester. They were influenced by William James, a land surveyor who had made a fortune in property speculation. He advocated a national network of railways, based on what he had seen of the development of colliery lines and locomotive technology in the north of England.

The railway was established by Henry Booth, who became its secretary and treasurer, along with merchants from Liverpool and Manchester. Charles Lawrence was the Chairman, Lister Ellis, Robert Gladstone, John Moss and Joseph Sandars were the Deputy Chairmen. The first directors were all important Liverpool or Manchester merchants, traders and civic figures.

As part of their fiduciary duties towards the shareholders, the directors issued six-monthly reports in the form of small, printed pamphlets, rarely more than four sides. Like modern business accounts, these outlined receipts and costs of all sides of the railway operation in the form of prose reports. Financial data appears to have been issued only annually at the time of the declaration of “interest” on the shares. The modern word dividend is not used in these years.

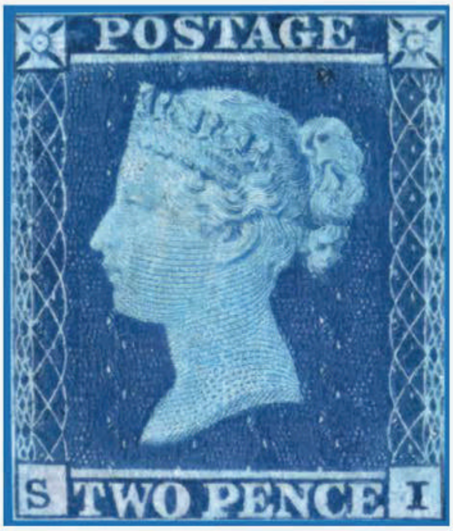
These reports were generally issued around the beginning and the middle of the year, allowing a six-month interval. On 27th January 1841 a report came out that neatly summed up what had been a very difficult tenth year of operation for the Liverpool & Manchester Railway.

The writer of the report was recounting there were many headwinds facing the company and its staff which are used to explain a considerable drop in traffic in the late 1830s and 1840. In terms of the railway’s passenger operations, then known as the ‘coaching department’, four such headwinds are highlighted to the investor by the anonymous author of the report.

The British pound has lost 99.231% of its value since 1839, meaning £1 in 1839 is equivalent in contemporary purchasing power to about £130. This translates into the £4,000 shortfall mentioned below in the report, being worth a significant £520,000 nowadays. According to the report:

“In the coaching department the receipts have fallen short to the extent of nearly £4,000, as compared with the corresponding period in 1839. The Directors have taken into their consideration the circumstances which have been instrumental in producing this deficiency, and they are of the opinion that several distinct causes, some of them perhaps insignificant, but important in the aggregate, have operated to this end. First, the general depression of trade already noticed.

The Two Penny Blue: the world’s second postage stamp.



“Second, the unfavourable weather during the greater portion of the season, usually selected for Travelling by those whose object is health or pleasure rather than business.

“Third, the Penny Postage. This popular measure, by cheapening correspondence, has multiplied it at the same time, and post despatches or covers, have superseded to a considerable extent the lighter sort of Coach Parcels, a profitable item of Revenue to the Company. It must be admitted also, the cheapness of correspondence has the tendency to create the habit of transacting business through the medium, and so, to lessen the necessity, and the frequency of personal journeys. The last circumstance which the Directors will mention as having diminished to some extent the Travelling by Railway, is the temporary want of confidence in the security of that mode of conveyance.

“The Directors deeply regret the Railway accidents which have occasioned this apprehension in the public mind. The sudden development and extension of this new mode of Locomotion; in the marvellous transition from a speed of Ten miles to that of Thirty miles an hour; though we may regret, perhaps we can hardly wonder that newly opened Lines have not been altogether exempt from accidents. The earnest attention of Railway managements is turned to the consideration of the best means of making Railway conveyance as pre-eminently safe, as it is decidedly cheap and expeditious, and the Directors have the fullest confidence in the accomplishment of this great object, if indeed taking a fair comparison, it be not already attained. It is a circumstance worthy of remark and congratulation, that the frequency of accidents seems to be in no way connected with the increase of Traffic on any Railway; those lines where the Traffic is the largest in the Kingdom having been for a long time, almost free from these casualties. In the last Twelve months, One Million and Fifty-two Thousand Passengers have been conveyed on the Liverpool and Manchester Line, with but one accident, which befel (*sic*) a passenger who recklessly jumped out of a Second Class Carriage when at full speed, to save a few miles walking from the next stopping place. It would seem that the necessity for constant vigilance and unremitting care on the part of the Enginemen, Police, &c., owing to the almost continuous movement of a large Traffic produces as its consequence, that habit of vigilance and the intuitive caution, on which the security of Railway Travelling must at all times materially depend.”

The railway was running eleven trains a day in both directions with fares for a single journey ranging from 4s 6d (22½p) to 6s 6d (32½p) by 1840. The directors would not have had to look very hard at why people were choosing to send letters to conduct

CORRESPONDENCE”

BED THE LIVERPOOL & MANCHESTER RAILWAY

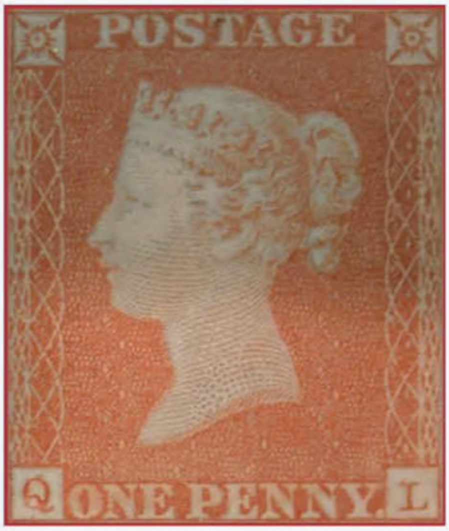
business rather than traipsing down to the railway, paying for a return fare and taking the greater part of the day to meet face-to-face. Simple mathematics can show that one single ticket, even third class, cost 54 pennies or almost a full mail bag of correspondence. First class travellers could have bought even more, 78 Penny Black stamps, for the equivalent rail fare.

Given that the railway was facing a hit on its passenger business because of a technological and social development then, there are curious echoes for the modern Train Operating Companies now which have seen a similar dip in fare income as many workers are choosing to Work From Home (WFH) rather than to attend their physical offices.

Stamps of success

In raising the issue of the existence of the Penny Postage, the company has highlighted the effect on the railway's receipts almost immediately it was launched. The arrival of the ¾-inch wide by ⅞-inch tall (approx.19 x 22 mm) stamp including the word ‘POSTAGE’at the top of the design to distinguish it from a revenue stamp which had long been used in the UK; ‘ONE PENNY’at the bottom showed the amount pre-paid for postage of the stamped letter. Not only was the Liverpool & Manchester Railway losing out on passenger revenues but the switch to the pre-paid letter from the earlier despatch of ‘coach parcels’ also meant diminishing income for the railway.

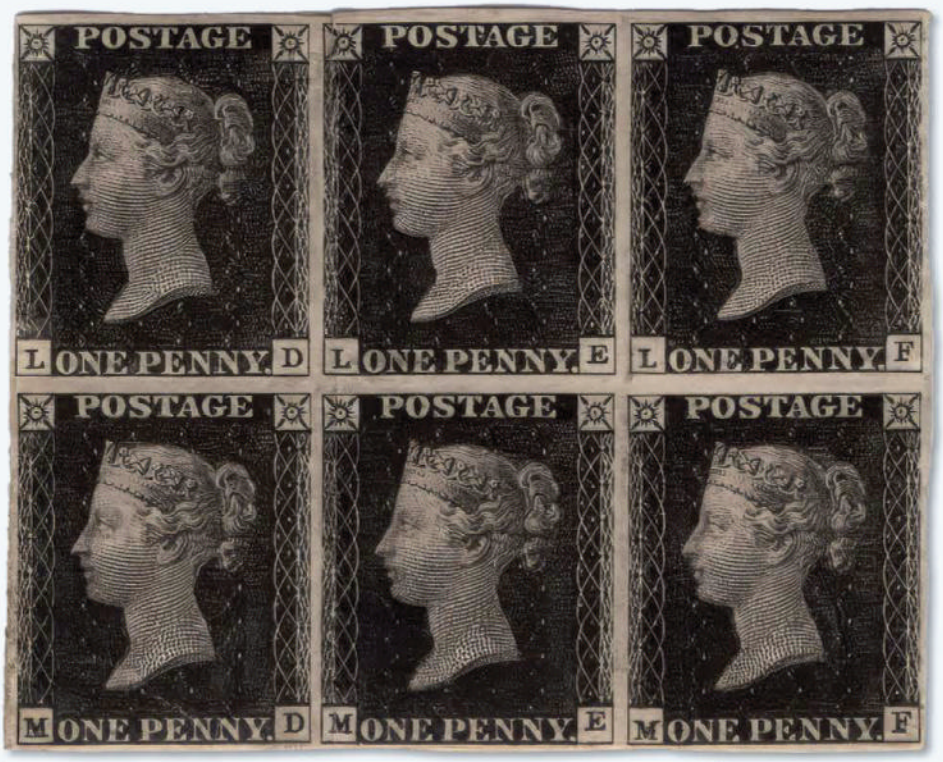
The Penny Black stamp, the world's first adhesive postage stamp, went on sale in Great Britain on 6th May 1840. This pre-paid stamp emerged from the necessity for a standardised postage rate in the United Kingdom, making postal services accessible to everyone, not just the wealthy. Before 1840, sending a letter was both costly and complicated, with the recipient responsible for paying the postage upon delivery. This led to a constant worry that someone would send you a letter you could ill-afford to receive.



The Penny Red.

Rowland Hill (1795-1879), a schoolmaster, was struck by the inefficiency of this system and set out to transform communication. He published a pamphlet entitled ‘Post Office Reform: Its Importance and Practicability’, advocating for a significant change. Hill proposed a new system with a cheap, flat-rate postage that would be pre-paid by the sender. After months of lobbying, Hill's vision materialised in the form of the world's first postage stamp.

A sheet of unused Penny Blacks.



The creation of the Penny Black has been described as a “captivating chapter” in philatelic history. The design process began with an open competition that invited designers and engravers to submit their visions for a stamp that would deter forgery and reuse. This competition garnered around 2,600 entries, but only four ideas from the Treasury Competition Essays of 1839 were selected, with each designer receiving a reward of £100, roughly £13,000 nowadays.

While elements from these winning designs were incorporated into the final portrait, the ultimate design was heavily influenced by Rowland Hill's choice. Hill selected an image based on a medal engraving of Queen Victoria created by William Wyon when the monarch was just fifteen years old. The printing was executed by Perkins Bacon, producing sheets of 240 stamps that required scissors for individual separation. To combat forgery, the stamps featured a white-line machine-engraved background and a simple crown watermark. This design was used on all stamps for the duration of Queen Victoria's reign.

Although the Penny Black is not rare, with over 68 million stamps printed and approximately 5% still surviving today, its value can be significant. The rarest examples, particularly those in pristine condition or from specific printings, can sell for well over £100,000.

The introduction of the Uniform Penny Post, facilitated by the Penny Black, led to a dramatic increase in UK domestic postal traffic, from 75 million items to 410 million within a decade.

The scarcest Penny Blacks originate from printing plate 11, which was initially intended for the Penny Red. In an emergency, this plate was used to produce only 700 sheets of the Penny Black, making these particular stamps exceptionally rare.

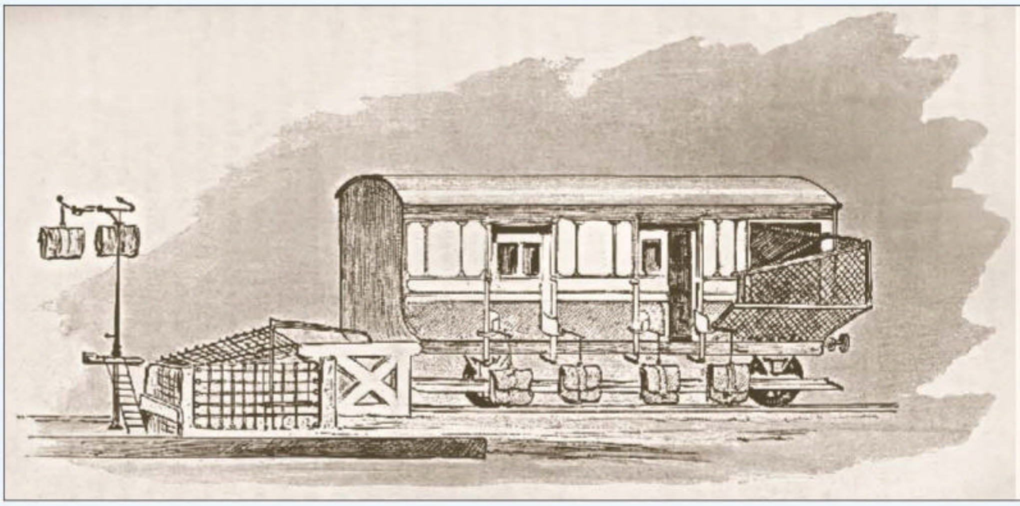
Despite its iconic status in classic philately, the Penny Black was ultimately considered a failure in its initial role. The red postmark used to cancel the stamps was removable, allowing for the possibility of reuse. When a black postmark was introduced to address this issue, it proved difficult to see on the black background of the stamp. These problems led to the development of the Penny Red, which replaced the Penny Black and was issued in various forms for the next 40 years. It's important to note that the Penny Black is just one part of the story. At the same time as the Penny Black, a 2d blue stamp was also issued, which is actually ten times rarer than its black counterpart.

As the first country to issue a postage stamp, Great Britain set a precedent that continues to this day: British stamps do not include the country's name in their design. The legacy of the Penny Black thus extends beyond its historical use, influencing the design and production of stamps in Great Britain and around the world.

Two Penny Blue

According to Warwick-based auctioneers and valuers of collectables Warwick & Warwick, the significance of the world's second-ever postage stamp is explained. The Two Penny Blue stamp claims an historic stature as the second official postage stamp ever produced. It is, of course, very much in the shadow of the Penny Black and remains popular to collectors even though it was hardly used in its time.

Whilst most of these stamps are not worth more than a few pounds today, this takes nothing away from the Two Penny Blue's iconic philatelic status. Like the Penny Black, this stamp was the brainchild of Rowland Hill. Issued just days after the first Penny Blacks, the Two Penny Blue Stamp started printing from 1st May 1840 and was produced for use in the UK and Ireland.
It officially went on sale to the public at the London Inland Revenue office on May 6th, 1840 but, in reality, they were actually only available from 8th May. Often referred to as the Two Pence Blue, a total of 6.46 million stamps was printed from two plates until 29th August 1840.



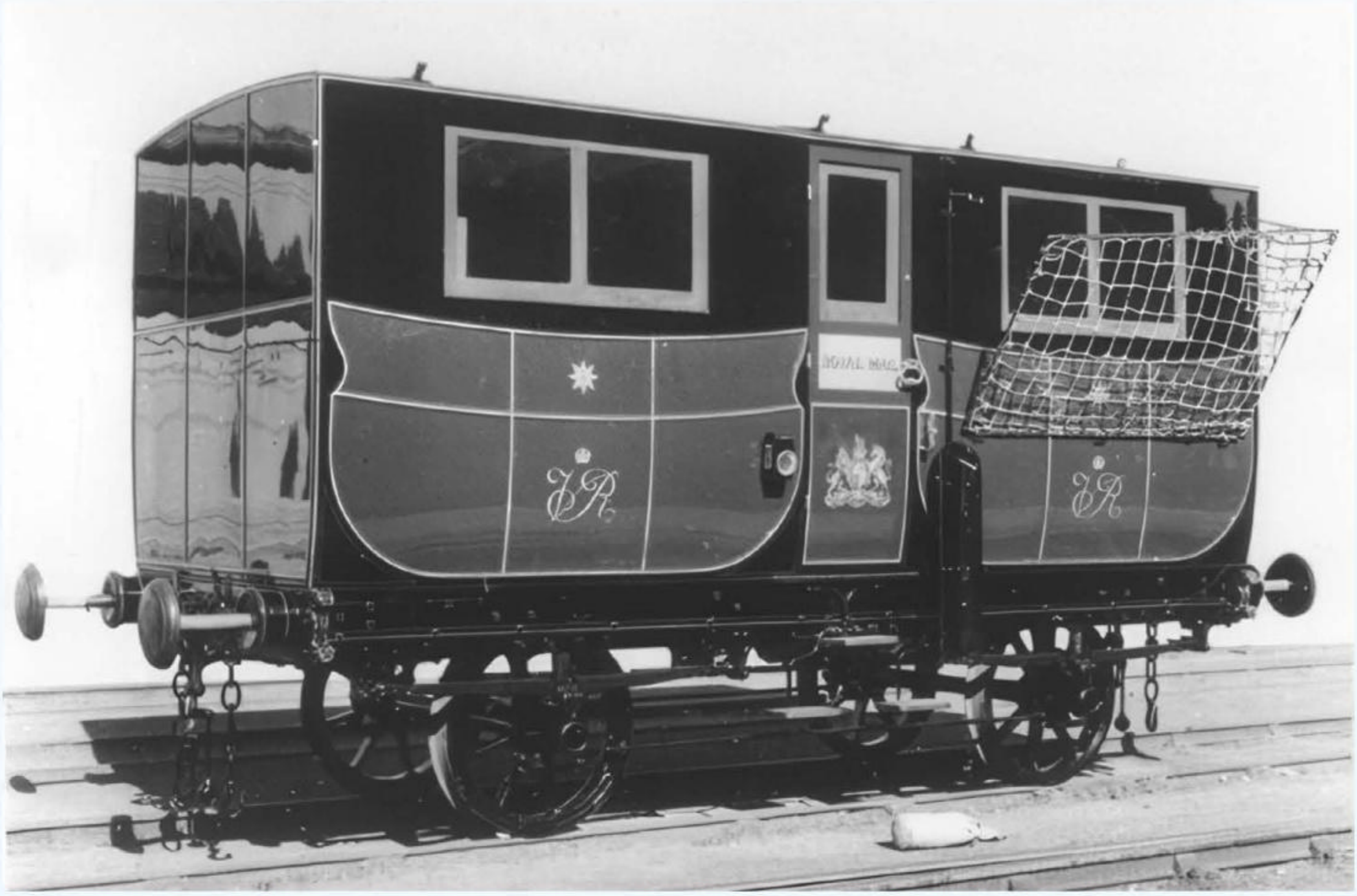
A drawing of an early mail van picking up and dropping mailbags on the move.

After less than a year in production, The Two Penny Blue and the Penny Black were eventually succeeded in 1841 by stamps that were judged to be more secure. This rarity helps to make these stamps highly coveted by collectors. Except for its denomination, the Two Penny Blue stamp features the exact same design as the Penny Black. Struck from the same die, it is inscribed in capital letters with the word 'POSTAGE'at the top and 'TWO PENCE'at the bottom. It also featured the image of Queen Victoria that was based a medal engraving created by William Wyon of her aged fifteen. Issued in sheets of 240 stamps, initially without perforations, later issues differed from the 1840 issue in having white lines added to the design. Perforations were added in two different gauges and the watermark was also changed.

While the Penny Black was designed so that a letter weighing up to half an ounce could be sent anywhere in Britain, the Two Penny Blue was designed to cover packages which weighed over half an ounce with a one-ounce weight limit. However, the stamp was rarely used because sending a parcel was alien to most people at this time. The revised version of the Two Penny Blue stamp went on sale in March 1841, having had its design and appearance slightly altered on 27th February 1841. To distinguish it from the original issue, a horizontal line was added at the top and bottom of the label. These Two Penny Blue stamps are referred to as the 'white lines added issue'and are far commoner than the 1840 original.

With just under 6.5 million Two Penny Blues entering production, these stamps are far from rare, but they are still ten times scarcer than the Penny Black, which enjoyed a 68 million one-year print run. Consequently, these iconic issues are now significantly rarer than the Penny Black. Issues from the first edition, in 1840, are the most valuable and sought-after by collectors.

Two Penny Blue stamps are probably worth around 200% more than they were two decades ago, but most are still not worth that much, with examples of the later issues regularly trading online from as little as £10 to £15 in 2021. Unusual or rare Two Penny Blue stamps might be worth more if they feature a unique cancellation, which is often just as interesting to philatelists as the



The original GPO mail van, rebuilt for an 1938 exhibition.

stamp itself. If its cancelled with a Maltese Cross, it is often worth more than those with a numeral cancellation.

There's always an exception to the 'they're not worth much' rule, of course. In the 1920s the largest-known 38-stamp block of 1840 Two Penny Blues, Plate 1, was sold in mint condition to King George V. A first day cover posted on 6th May 1840 would probably arouse quite a bit of interest amongst collectors, but unfortunately, the more valuable Two Penny Blues are scarce. Regardless, the fact that these stamps are still in demand – more than 180 years since first being issued – demonstrates their lasting legacy, notes Warwick & Warwick.

A depressed economy

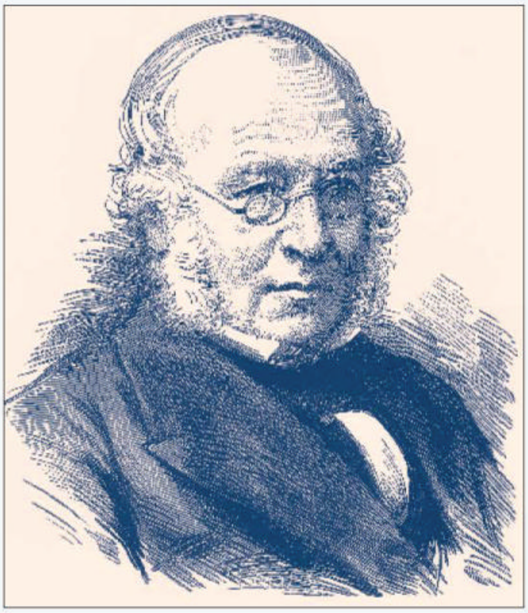
A decade after its opening in 1830, the directors of the L&MR found themselves in the face of general financial difficulties that impacted on demand for both their freight and passenger services.

Between the years 1836 and 1838 about 63 banks collapsed in England, significantly reducing the funds available for investment and leading to rising unemployment amid high food prices. Much of the country's bullion had been invested in America, where returns were promising. The poor harvest of 1838 necessitated exporting bullion to purchase food, exacerbating the situation. Industry suffered with massive unemployment and increased food prices. By the late 1830s, both domestic and export markets were insufficient to absorb Britain's manufactured goods, leading to a depression that began mildly in 1837 but gradually worsened.

Poor harvests in Britain continued, resulting in substantial grain imports, especially in 1838 and 1839, which failed to lower high food prices and dampened domestic demand. Disillusionment with foreign borrowers, particularly in the United States, discouraged overseas investment and reduced British exports. Cotton industry prices began falling as early as 1833 due to overproduction. Millowners, burdened with expensive equipment, could not afford to limit output to stabilise prices, leading to increased capacity. The year after the directors highlighted the financial strains, key buyers in Belgium, Saxony and Prussia reduced their consumption of British yarn, prompting British producers to flood other foreign markets, further depressing cotton prices. Similar trends were observed in other industries, with wool experiencing a deep depression by 1842.

Between 1836 and 1843, coal output rose by 60-70% while demand increased by only 30%. Attempts by colliery owners to control output through quotas failed, causing the industry to slump. The iron industry followed a similar trajectory, with significant output growth in South Wales, Staffordshire and particularly Scotland, rendering the industry increasingly unprofitable by 1840. The speculative boom in railways and shipbuilding, major employment sources post-1836, was largely exhausted by the time that the L&MR directors had put pen to paper.

The primary issue facing the UK manufacturing economy in the late 1830s was overproduction, which both domestic and export markets could not absorb. The interconnected economy magnified this depression: coal depended on iron; iron relied on industrial expansion at home and abroad; demand hinged on the ability and willingness to invest and earn. A downturn in one sector adversely affected others.



Rowland Hill

Britain's trading policy exacerbated the situation. By 1840 tariffs on imports accounted for nearly half of total tax revenue. As prices of Britain's exports fell faster than those of imports, the relative cost of imported raw materials and food were increasing. Between 1836 and 1840 imports exceeded exports by over £5 million (£650 million in modern values) annually. Clearly having a vital stake in the fortunes of the Liverpool port trade, the L&MR would appreciate that instead of shielding the British economy from foreign competition, tariff policy depressed workers'consumption capacity and work incentive, which negatively impacted export production costs.

Bad weather

The year 1840 started in England and Wales at the end of a period of notably wet conditions, with the cumulative rainfall anomaly reaching 140% of the average in 1839. This had included an exceptionally wet summer in 1839.

From New Year's Day 1840, London and the southern regions were smothered in dense fog. The autumn that year saw excessive rainfall over parts of the country, especially in Scotland, particularly in the north east. From 27th to 29th November 1840 thick fog once again affected London and the southern regions.

However, as is so typical of English weather, 1840 was also a dry year overall in both the London and England & Wales series. According to the Greenwich record, the total rainfall for the year was 16.43in (417mm), which is about 70% of the contemporary average. February, March, April, August and December were all notably dry, with March and April being especially dry, recording only 0.09in (2mm) in April. In the broader England and Wales records, the total rainfall was 801mm, some 88% of the long-term average, with March 1840 receiving just 10mm (13%) of rain, making it the third driest March on record. This contrasts sharply with the excessive rainfall in Scotland during the autumn.

The winter of 1840/41 was severe, with all three winter months experiencing Central England Temperature (CET) anomalies significantly below average.

Accidents will happen

"The Directors will mention as having diminished to some extent the Travelling by Railway, is the temporary want of confidence in the security of that mode of conveyance" says the report. In the grandiloquent manner of much early Victorian prose, they were telling the shareholders that a spate of passenger and railway staff deaths on some of Britain's earliest railways had created what we would now refer to a as a media storm whipping up anti-railway sentiment.

In August that year, five passengers had been killed in the East Riding of Yorkshire when a large piece of cargo, cast iron, fell from a wagon and derailed the following carriages. It happened on the Hull & Selby Railway as the train was travelling from Leeds to Hull. The crash was one of the first railway accidents to be investigated by the Railway Inspectorate. One of the worst accidents to have occurred on the new UK rail network, it was also a new phenomenon for the public; shipwrecks and coalmining accidents were more frequent. The next fatal incident in 1840 saw one passenger killed and four injured when a train overran the line end at Faringdon Road, Berkshire, on the Great Western Railway's main line extension from Reading through the Vale of White Horse. The driver had fallen asleep at the controls.

The last accident that year, which happened in November, which saw two killed, was at Bromsgrove, Worcestershire, at a station which opened as part of the Birmingham & Gloucester Railway, later part of the Midland Railway. An experimental steam locomotive named *Surprise* burst its boiler at the station, killing the driver, Thomas Scaife, and fireman, Joseph Rutherford. Some authorities say the incident happened on the Lickey Incline but this is due to an erroneous early report in the *Worcestershire Chronicle* which was later corrected. They are buried in Bromsgrove churchyard.

Accidents on the railway have never gone away. There were eight non-workforce fatalities (passenger or public) in the year to March 2023. There were two workforce fatalities in the year in the same period. Both of these were road traffic collisions which occurred on the main line. There were eleven people who died in accidents while trespassing in the year to March 2023. They involved ten trespass fatalities on the main line and one on the non-main line.

The law of unintended consequences is evident that following the switch away from steam power, in that no-one dies as a result of a boiler explosion any longer.

The growth of the UK rail network since the launch of the Stockton & Darlington Railway in 1825 and the Liverpool & Manchester Railway and Canterbury & Whitstable in 1830 had been slow and steady. What the directors of the L&MR perhaps did not know was that within a decade of the writing of the report in 1840 the 'Railway Mania' which kicked off in 1840 would see that a virtually complete network had been laid down and the vast majority of towns and villages would have a rail connection and in some cases even two or three, many of which survive to this day.

Mail on rail business

The directors may have bemoaned the flight of passengers away from the railway's services but they were slightly disingenuous in not noting the rise in revenues from the carriage of mails. In fact, just three months after the railway's opening in 1830, the first ever postal movement by rail in the world was performed by the L&MR in the November of that year. Within a decade of the launch of the Penny Black, some 410 million letters had been sent in the United Kingdom. Given the commercial importance of both Liverpool and Manchester, it is likely that a great deal of mail traffic was between these two towns. A Travelling Post Office (TPO) was a type of mail vehicle used in Great Britain and Ireland where the post was sorted en route as the train moved along the line. The TPO can be traced back to the earliest days of the railway in the United Kingdom.

The Railways (Conveyance of Mails) Act 1838 obliged railway companies to carry mail. The passing of the Act substantially reshaped the rail mail market. Chiefly, it required all railway companies to carry mail, either by ordinary or special trains, as required by the Postmaster General. However, this Act did not stipulate what was to be charged for such services. In addition to making it mandatory for railway companies to carry mail, the Act also required the provision of carriages fitted for sorting it as required. This was the push to these railway companies to quickly develop specialised rolling stock for the task.

The service commenced after the L&MR came to an agreement with the General Post Office (GPO) to move mail on L&MR services. Given the railway connected a major manufacturing centre and a major seaport, there was likely to be great demand for mail conveyance between the two. It quickly became apparent that the railways were providing a much faster method of conveying letters than traditional horse-drawn coaches. Accordingly, the carriage of mail by train in Great Britain became a routine event within a matter of years. Initially, the movement of mail was at the choice of individual railway companies, being able to accept or refuse to do so at their discretion, before Parliament intervened eight years later to force their hands.

The first dedicated and specially designed TPO carriage emerged during 1838. George Kastadt, a surveyor employed by the GPO, was credited with the concept. On 6th January 1838, Kastadt proposed a trial of a 'travelling office', of which the first run was conducted just weeks later. The advantage of this innovation was that time could be saved by sorting mail while it was being transported, rather than separately sorting it either beforehand or afterwards, thus taking more time to do so. This initial TPO was a converted horse box and operated on the Grand Junction Railway. Karstadt's son Frederick was one of two mail clerks who did the sorting.

In conclusion

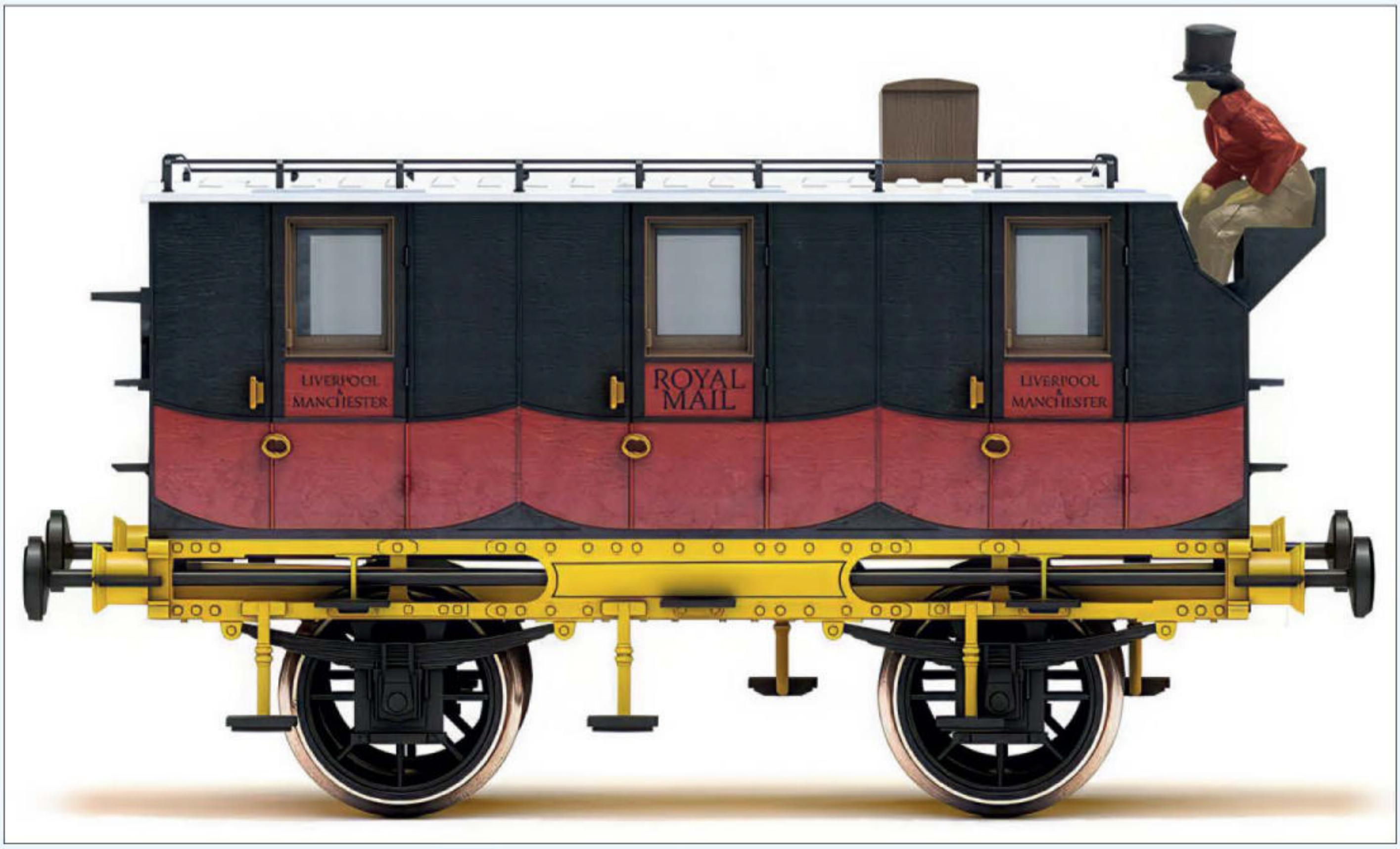
When the report that prompted this article was written, the modern railway had only been in operation for a decade and a half. The four headwinds – economic depression, weather, the arrival of postage stamps and a drop in passenger confidence – which buffeted the railway in 1840, were tastes of the headwinds to come over the next 180 years.

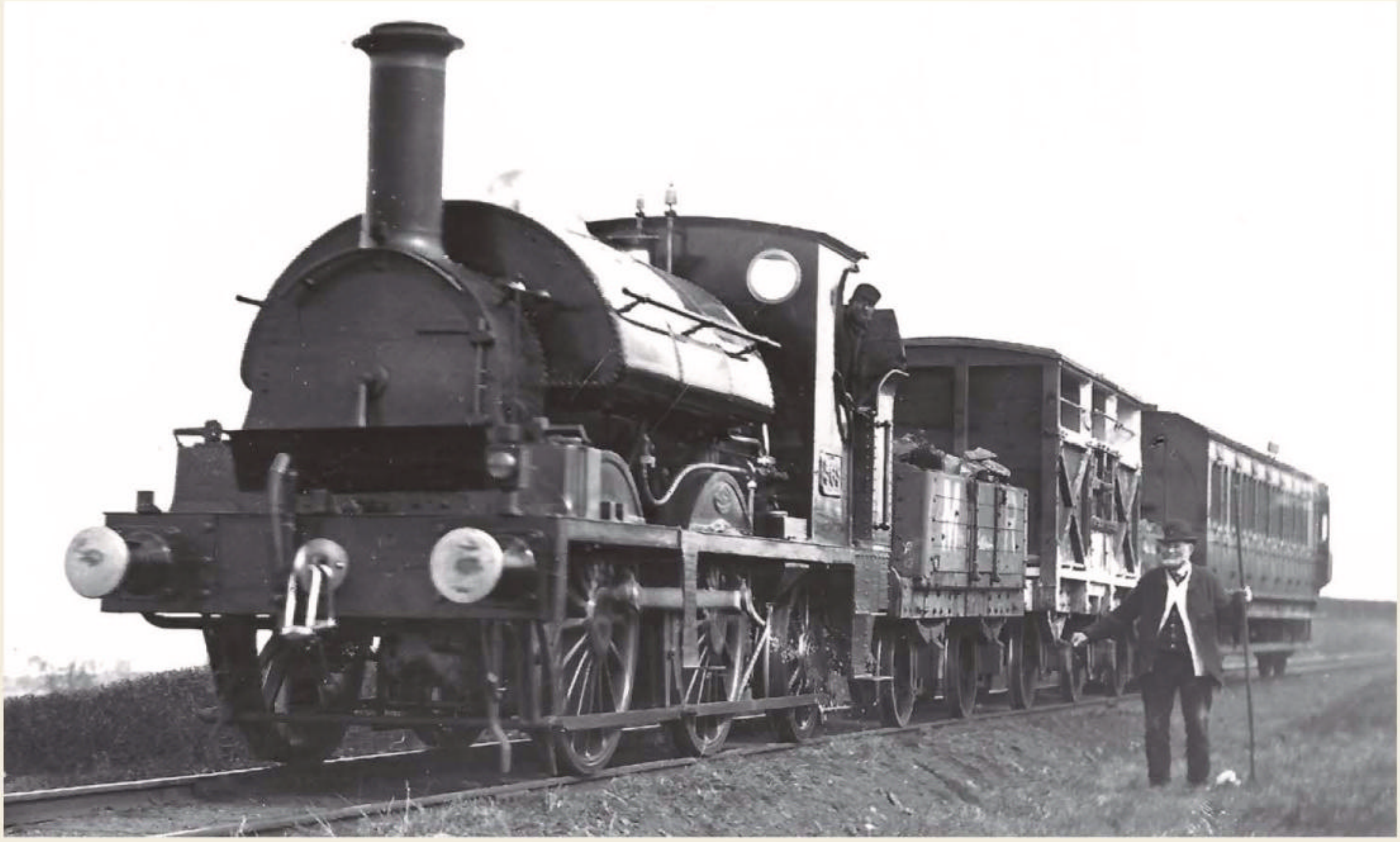
The next key development it would have to face would be the arrival of the Parliamentary Train. This was a passenger service operated in the United Kingdom to comply with the Railway Regulation Act 1844 which required train companies to provide inexpensive and basic rail transport for less affluent passengers. The Act required that at least one such service per day be run on every railway route in the UK. It compelled "the provision of at least one train a day each way at a speed of not less than 12 miles an hour including stops, which were to be made at all stations, and of carriages protected from the weather and provided with seats; for all which luxuries not more than a penny a mile might be charged".

The directors would therefore see in 1844 a fare of 31d down from a fare of 54d in 1840, almost half of what they once charged for a third class ticket. This removed some of the incentive to send letters by the working class which was growing in literacy.

In 1845 the railway was absorbed by its principal business partner, the Grand Junction Railway (GJR), which in turn amalgamated the following year with the London & Birmingham Railway and the Manchester & Birmingham Railway to form the London & North Western Railway.

Hornby's L&MR Royal Mail carriage in 1:76 scale.





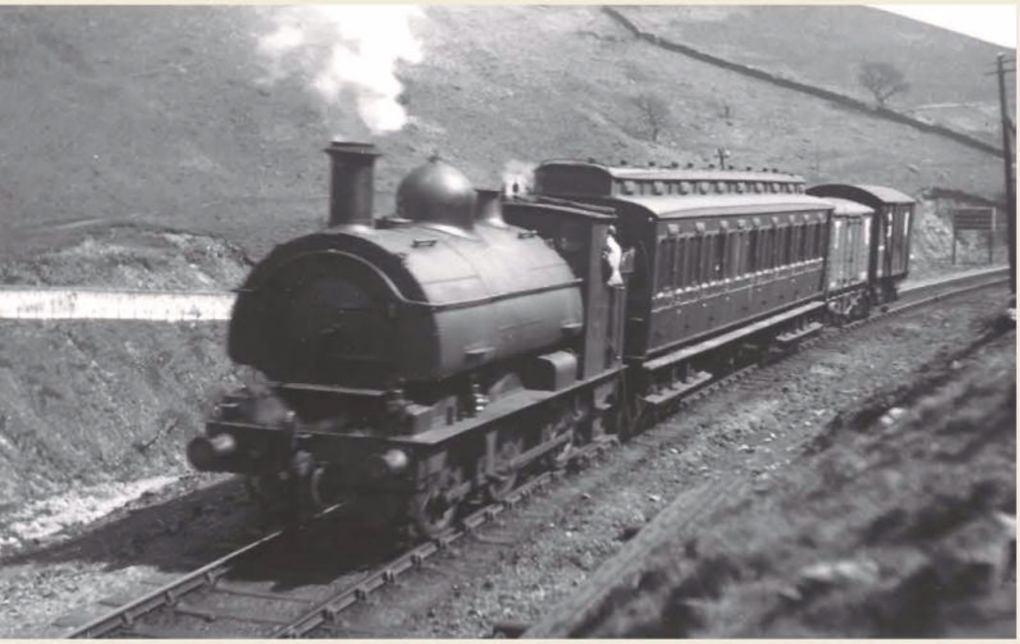
A GWR mixed train at an unknown location, consisting of GWR 0-4-2 No.569, a Midland Railway dumb-buffered four-plank open wagon loaded with coal, a cattle wagon with outside wooden framing, probably another coal wagon and a low arc-roofed bogie coach. The only brakes on the moving train were on the engine and the screw handbrake in the guard's compartment. This was exactly what the Railway Inspectorate was complaining about so vociferously. (Unattributed, J. Lewis collection)

MIXED TRAINS

PETER TATLOW sets out to clarify the term 'Mixed Train'.

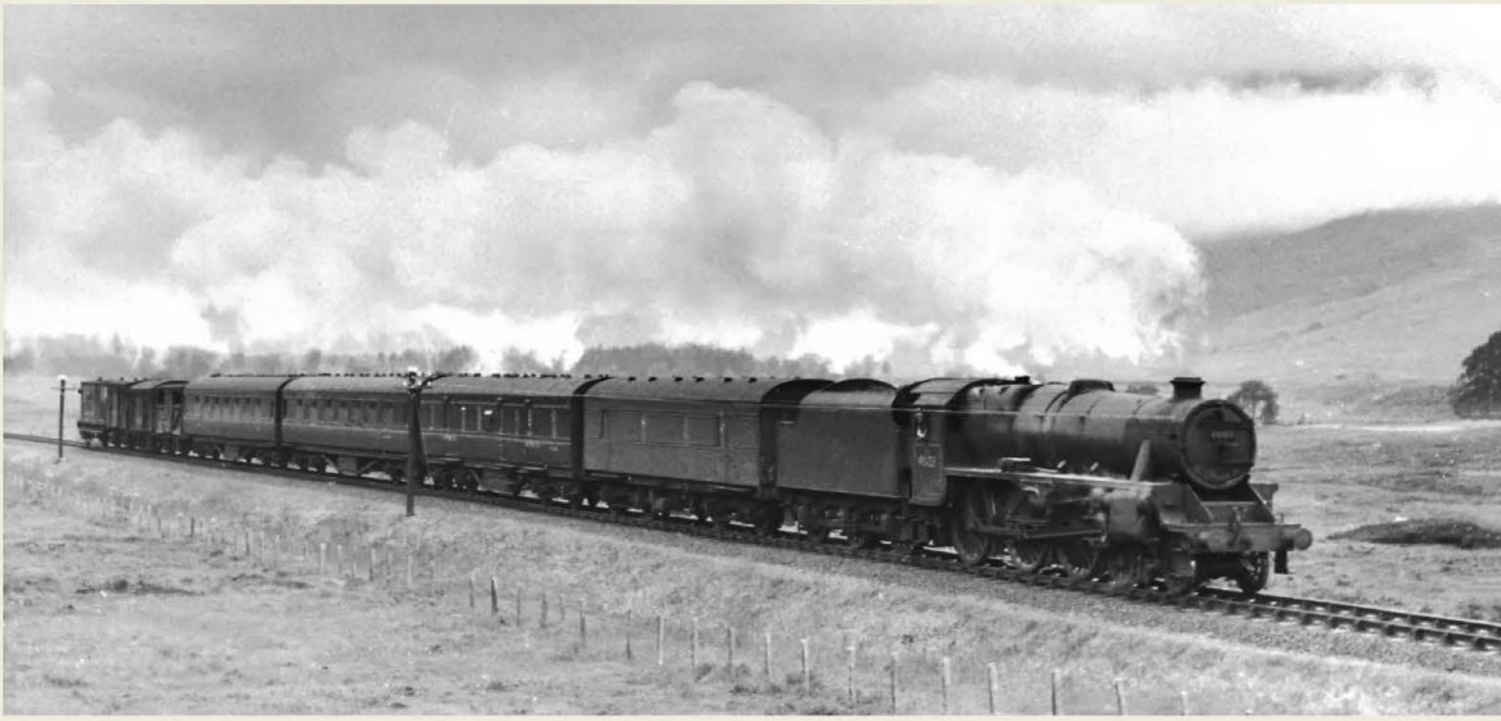
The use of 'Mixed Trains' was likely to have been an attractive proposition to any railway where traffic was sparse and economies could be achieved by running combined passenger and goods trains on many, mostly branch lines. By mid-Victorian times, for operating convenience on lightly-used lines, it had become general practice to marshal the goods wagons between the engine and the passenger coaches. This way the engine could be readily detached so as to be free to shunt wagons at intermediate stations on the way without having to run round the train to handle wagons at the rear. The Board of Trade's Railway (BoT) Inspectorate, however, was under no illusions that this exposed passengers to unnecessary risk. As well as advocating the adoption of the equally important absolute block system and the interlocking of facing points, it had for some time been pressing hard for the adoption of continuous automatic brakes on all passenger-carrying vehicles. In the case of 'Mixed Trains' this would have meant marshalling the coaching stock between the engine and any goods stock without automatic brakes. Whilst reluctantly accepting its points of view, due to the anticipated heavy expense the railway companies had been in no hurry to comply with the BoT's wishes.

Here we see the 3.10pm mixed train from Cymmer to Glyncorrwg on 14th May 1919 made up of former South Wales Mineral Railway 0-6-0ST No.5 now GWR No.1546, followed by a GW clerestory third coach and two covered vans, one belonging to the Taff Vale Railway and the other to the GWR. The engine and coach will have the automatic vacuum brake, but neither van will be so equipped. (K. Nunn LCGB Collection, courtesy J. Lewis)



Accident at Achnashellach 1892

An example of the dangers to which the public might be exposed by the absence of continuous brakes was clearly demonstrated by the accident which occurred on the Highland Railway's Dingwall and Skye branch, at the time not yet extended to Kyle of Lochalsh.[1] One of David Jones's 4-4-0 'Duke' Class No.74 *Beaufort* was hauling the 4.20pm mixed train from Dingwall consisting of nine wagons followed by three coaches and a brake van. Despite the engine being equipped with vacuum brake, this was not



On the Dingwall and Skye line, the 6.30am mixed train from Kyle of Lochalsh behind ex-LMS Stanier 'Black Five' No.45123 as it passes Coulags, between Strathcarron and Achnashellach, on 24th July 1959. The train is made up of an ex-LMS bogie utility van, ex-LMS passenger bogie brake van, two ex-LMS Period 3 corridor coaches, a single cattle truck, two covered goods vans and a goods brake van. (Author)

connected to any of the rest of the train. Instead, the goods wagons were marshalled in the usual age-old fashion immediately behind the engine and were merely equipped with a hand lever brake, and only on one side at that. Furthermore, instead of being at the very back of the train, the passenger and only brake van was connected to the two adjacent four-wheel coaches equipped with the by then out-dated Newall brake system, but these and another six-wheel coach were all at the rear of the brake van.[2]

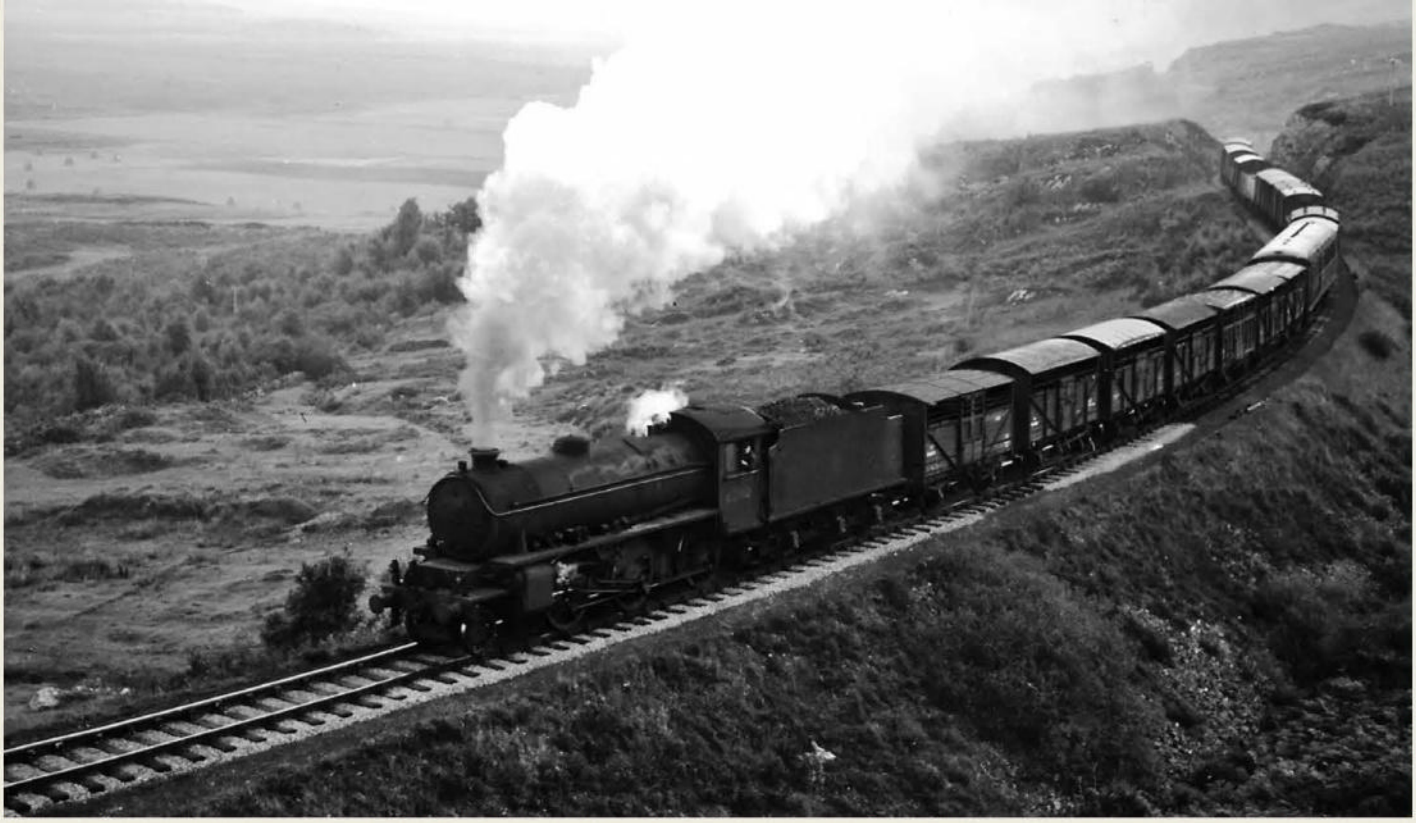
Due to a problem encountered on the way at the previous halt Glencarron platform, which rendered the Newall brake on the guard's brake van and the two adjacent passenger coaches inoperative, the train was running 35 minutes late. Nonetheless, on the driver's assurance, relying now on the brake power of the locomotive alone, the train continued to the next station, Achnashellach. Here it arrived at about 6.45pm, there to drop off two goods wagons at the head of the train. At this time there was no passing loop at Achnashellach, so the engine and tender were halted just short of the turnout to the siding, so as to be able to uncouple the two wagons and place them in the siding.

Without the brake applied in the brake van, much of the train was still on the rising gradient on the approach to the station and the coupling between the tender and the first wagon, still under tension, was impossible to uncouple. The train crew, having failed to inform the station master of the brake problem and in the absence of the guard, both of whom were engaged elsewhere down the train, the driver instructed the fireman to set the engine back slightly to ease the strain while he uncoupled the train from the engine. Of course, now unrestrained and with no means of braking the train, including the nine passengers in the coaches, slowly at first the rear portion started to roll back down the incline. Gathering momentum on the steep gradient, it careered down into the dip a mile or so away and part-way up the rising gradient on the other side until drawing to a stop; it slowly returned towards the lowest point.

Rashly, after a pause of number of minutes, the driver slowly set off in pursuit of his train, in the hope of being able to re-couple. No matter how cautiously he approached, however, on a dark and showery night, instead the train running back met him with some force over a mile from the station. As a result of the impact one wagon loaded with sleepers was derailed and broken up, while eight passengers suffered cuts and bruises, but fortunately none was seriously injured.

Under examination by Major Marindin, Royal Engineers, during the Inquiry, those questioned gave various and conflicting accounts of their respective futile attempts to apply the wagon brakes along the train, supposedly before and once it started to move; not all, if any, can have been true and, had they been, would have probably prevented the train running away.

Further east on the line between Garve and Achterneed, from a position under the crags of Raven's Rock, an unidentified Stanier 'Black Five' at the head of the 6.30am mixed train from Kyle of Lochalsh to Dingwall on 19th August 1960 blows off excess steam as it threads the gorge below. (Author)



On the West Highland Extension K1 Class 2-6-0 No.62012 about to pass Kinloid Farm, Arisaig, on 4th September 1959 with the 6.30am mixed train from Mallaig for Fort William where the sheep sales are scheduled. The string of vacuum-braked fitted cattle wagons will be connected to the single ex-LNER brake composite corridor coach, while the rest of the wagons, probably loose-coupled with three-link couplings with the guard in the goods brake van, are at the rear. (Author)

Regulation of Railways Act 1889

The Regulations made the use of fully automatic brakes continuously connected to all passenger-carrying vehicles obligatory.[3] Furthermore, these had to be adjacent to the engine, without unfitted wagons being inserted in between, in order that they could be connected and provide continuity to the automatic brake. This was not good news to the impecunious Highland Railway and many others which, on 16th February 1891 receiving an order to comply by 16th August 1893, sought an exemption to afford them time to fit up their passenger stock.[4]

Although extensions of time for implementation of the Regulations were granted, these finally ran out on 1st January 1896. Despite the runaway of the mixed train at Achnashellach in 1892 (see above) with serious implications, the deadline passed and the Highland carried on as usual without heed of the dictates of faraway London. Only on 20th September 1897 did the company finally admit defeat and fall in line.[5]

Armagh accident

The rapid enacting of the Act had been brought about, following a disastrous accident, which had occurred at Armagh on 12th June 1889 on the Great Northern of Ireland, when 80 lives were lost, quite the worst in the British Isles to date.[6&7] On a single line worked by staff and ticket, a heavily loaded excursion train without continuous automatic brakes, having stalled, had been divided and the rear portion ran away on a 1 in 75/82 gradient. These vehicles had collided violently with a following train, resulting in 80 deaths and numerous injuries. In such circumstances, the political will thereby generated enabled Parliament to pass the Regulations of Railways Act of 1889 into law before the year was out.[8]

The Act included the requirements that within a limited time period for the railways to implement the following:

a) interlocking of points.

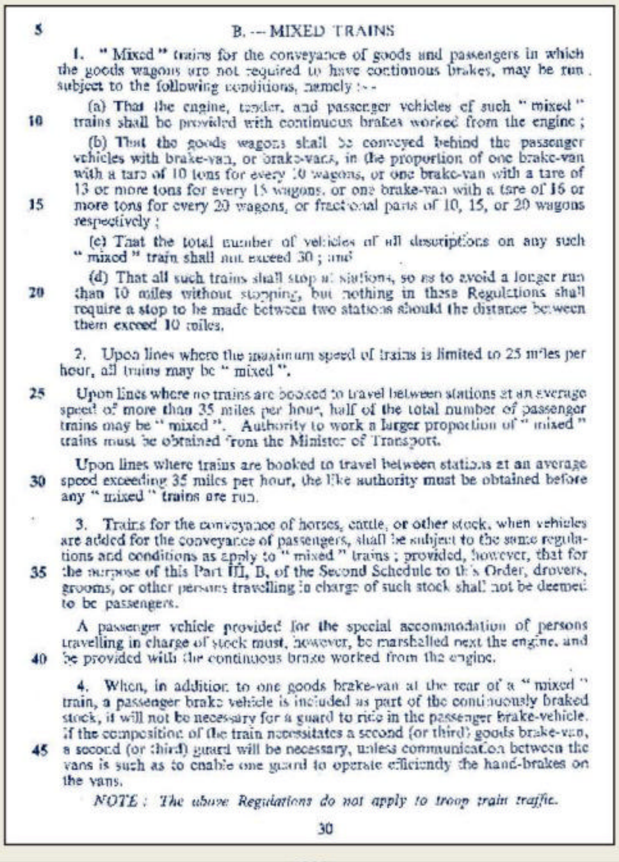
b) continuous automatic brake to all passenger-carrying vehicles.

c) adoption of absolute block working on all passenger-carrying lines.

To specify its technical demands, the Board of Trade issued Requirements for passenger lines and recommended for goods lines of the BoT/MoT in regard to railway construction and operation in 1892, with updated versions published from time to time and by 1950 amounting to 38 pages, known as 'The Blue Book'.[9]

As the railway companies responded to the Board of Trade's ever-increasing pressure to impose the fitting of fully automatic brakes on all passenger-carrying trains, they found the application of such measures particularly onerous on lightly used branch lines. Under certain conditions the railways were, nonetheless, permitted to add a limited number of unbraked fitted goods vehicles at the rear of infrequent branch trains, subject to the conditions set out in Appendix IB.

The LMS and LNER Rule Books, Rule 16, merely stated that Mixed Trains were to be regarded as Passenger Trains.[10] So, as an operating matter, the requirements in respect of instructions regarding the use of continuous brakes as a whole, applied to passenger and mixed trains (Appendix A and B), were repeated in each of the companies' Appendices to the Working Timetables and expanded upon as seen fit by each (11-13). On the other hand, the Southern's Rule book included on pages 20-21 – 'Exceptions or modifications with respect to continuous brakes', which repeated Appendix 1B.[14]



B. — MIXED TRAINS

1. "Mixed" trains for the conveyance of goods and passengers in which the goods wagons are not required to have continuous brakes, may be run subject to the following conditions, namely :—

(a) That the engine, tender, and passenger vehicles of such "mixed" trains shall be provided with continuous brakes worked from the engine ;

(b) That the goods wagons shall be conveyed behind the passenger vehicles with brake-van, or brake-vans, in the proportion of one brake-van with a tare of 10 tons for every 10 wagons, or one brake-van with a tare of 13 or more tons for every 15 wagons, or one brake-van with a tare of 16 or more tons for every 20 wagons, or fractional parts of 10, 15, or 20 wagons respectively ;

(c) That the total number of vehicles of all descriptions on any such "mixed" train shall not exceed 30 ; and

(d) That all such trains shall stop at stations, so as to avoid a longer run than 10 miles without stopping, but nothing in these Regulations shall require a stop to be made between two stations should the distance between them exceed 10 miles.

2. Upon lines where the maximum speed of trains is limited to 25 miles per hour, all trains may be "mixed".

Upon lines where no trains are booked to travel between stations at an average speed of more than 35 miles per hour, half of the total number of passenger trains may be "mixed". Authority to work a larger proportion of "mixed" trains must be obtained from the Minister of Transport.

Upon lines where trains are booked to travel between stations at an average speed exceeding 35 miles per hour, the like authority must be obtained before any "mixed" trains are run.

3. Trains for the conveyance of horses, cattle, or other stock, when vehicles are added for the conveyance of passengers, shall be subject to the same regulations and conditions as apply to "mixed" trains ; provided, however, that for the purpose of this Part III, B, of the Second Schedule to this Order, drovers, grooms, or other persons travelling in charge of such stock shall not be deemed to be passengers.

A passenger vehicle provided for the special accommodation of persons travelling in charge of stock must, however, be marshalled next the engine, and be provided with the continuous brake worked from the engine.

4. When, in addition to one goods brake-van at the rear of a "mixed" train, a passenger brake vehicle is included as part of the continuously braked stock, it will not be necessary for a guard to ride in the passenger brake-vehicle. If the composition of the train necessitates a second (or third) goods brake-van, a second (or third) guard will be necessary, unless communication between the vans is such as to enable one guard to operate efficiently the hand-brakes on the vans.

NOTE : The above Regulations do not apply to troop train traffic.

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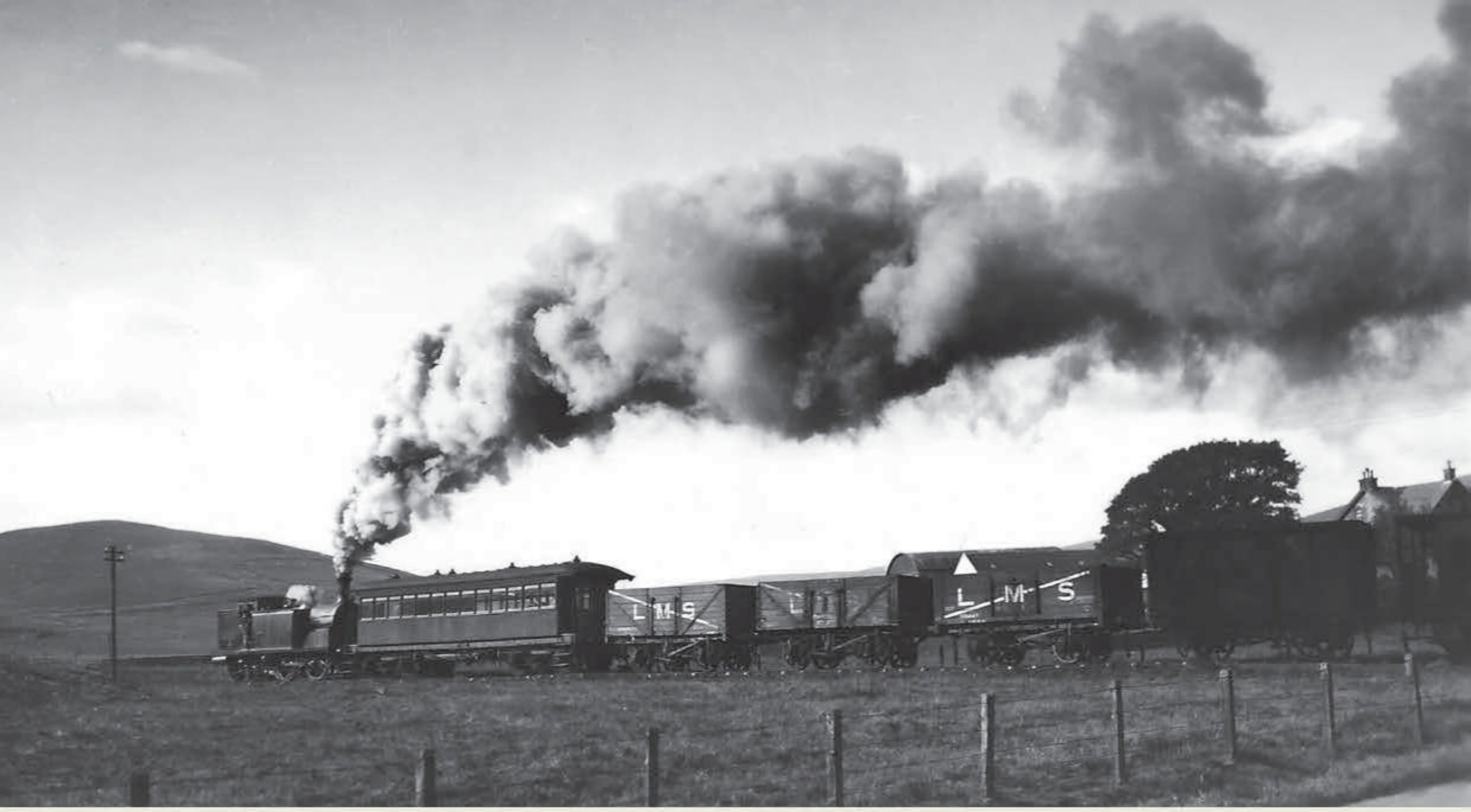
Reproduction of Appendix 1B of requirements for passenger lines and recommended for goods lines of the Ministry of Transport in regard to railway construction and operation dealing with mixed trains (1950).
(HMSO, Author's Collection)



At almost the opposite end of the LMS Northern Division/Scottish Region was the branch from Elvanfoot, on the West Coast Main Line from Carlisle to Glasgow, to Wanlockhead and the lead mining activities around Leadhills. Constructed under the provisions of the Light Railway Act, the highest point on standard gauge in Great Britain and Ireland was achieved on this branch line. Ex-Caledonian Railway 0-4-4T LMS No.15217 makes a deal of smoke as it tackles the 1 in 40/50 gradients on 7th October 1936 with a mixed train consisting of an ex-Garstang & Knott End bogie composite coach, three LMS end door mineral wagons and a covered goods van.
(Unattributed, Author's Collection)

This type of train was therefore subjected to a number of restrictions, such as stopping at all stations, continuous brake between the engine and all passenger vehicles, together with a number of brake vans in proportion to the number unfitted wagons in the rest of the train. In addition, the total number of all types of vehicle in the entire train was not to exceed 30, except in the case of a circus train when the figure was permitted to increase to 35.

On certain branches, such as Kyle of Lochalsh to Dingwall, and Elvanfoot to Wanlochead, when no goods train service was available, loaded or empty oil or petrol tank wagons could be conveyed by mixed train, but had to be marshalled next but one to the rear brake van, while other ordinary goods vehicle(s), excluding any containing combustible material such as hay or straw, placed between it and any passenger carrying vehicle.[15]

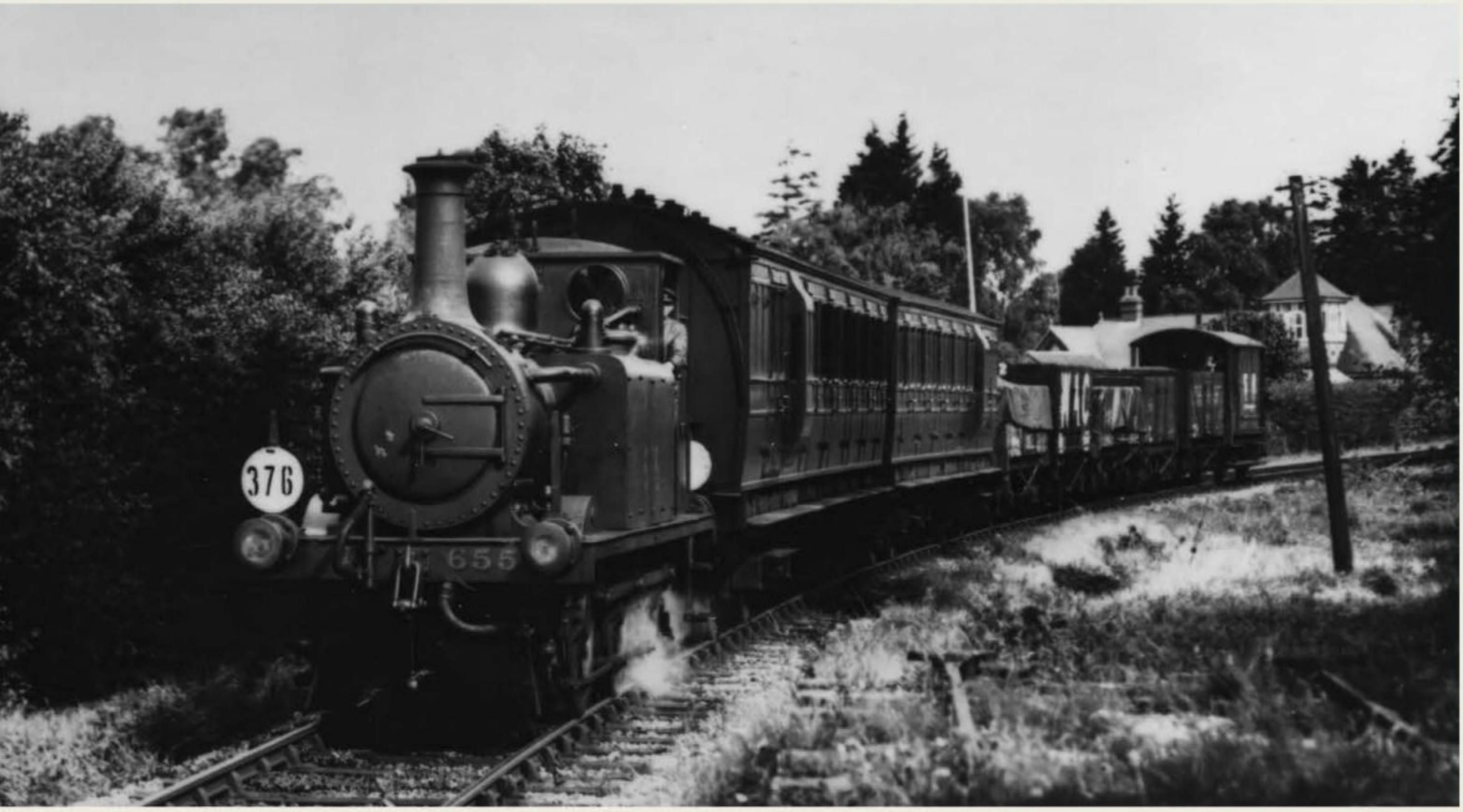
Achterneed accident 1897

The ongoing need for the procedures that the Board of Trade advocated was soon to be demonstrated, when on 25th September 1897 on a wet night the Highland 6.15pm mixed train from Dingwall to Stromeferry, still marshalled in illegal fashion and hence without continuous brake extending to the passenger coaches, encountered trouble.[16] Having passed Achterneed, halfway up the four-mile 1 in 50 incline from Fodderty Junction to Raven's Rock, the driver of Jones 4-4-0 'Skye Bogie' No.88, John MacPherson was having difficulty making headway against the gradient, when a coupling fractured shortly before reaching the summit. As the rear portion of the train started to roll backwards, the guard, Roderick Cameron initially thought the driver was setting back to Achterneed, where there was a passing loop, to make another attempt or even to divide the train and try again to make the summit. However, as the train gathered greater speed above that a cautious descent warranted, he realised matters were more serious. Four goods wagons, four coaches, a luggage van and his brake van not only failed to stop at the station, but continued on down the hill, only just surviving the sharp curve to join the Strathpeffer branch at Fodderty Junction. On the outskirts of Dingwall, the runaway vehicles crashed through the second of a pair of level crossing gates, thereafter fortunately running out of momentum just short of the junction with the line to the north.

Front line staff, however, were not the only parties to be severely criticised by the Inspector, with the implication that the management was lax and in no hurry to implement the new Regulations. Fierce correspondence between the Highland Railway and the Board of Trade ensued. The nub of the matter was that the railway was resisting the implementation of an order issued in February 1891 under the provisions of the Regulation of Railways Act of 1889, which made the use of fully automatic brakes connected throughout all passenger carrying vehicles obligatory. This, however, made the operation of mixed trains, as practiced by the Highland Railway and others, impractical and despite an extension of time the railway was still seeking to avoid complying. Their efforts extended to complaining direct to the President of the Board of Trade.[18]

Thereafter, mixed trains continued to be run on the railways of Britain, albeit on a much-reduced scale, with automatic brakes now connected to all passenger-carrying vehicles, while unfitted vehicles were kept to the rear. On the Skye line a few regular goods trains were introduced, but nonetheless this line and many lightly used branch lines regularly scheduled, or as required, at least one mixed train each day, sometimes only in one direction.[17]

Elsewhere, there was a number of Great Western and Southern Railway branches



which regularly used mixed trains, such as Shipston-on-Stour, Hay-on-Wye, Lyme Regis, the North Devon & Cornwall Junction between Torrington and Halwill, Bodmin & Wadebridge, together with the Mid-Suffolk Light Railway and various of the Colonel Stephens light railways.[19]

My thanks are due to John Lewis, Mike King and John Harvey, all members of the Historical Model Railway Society for their assistance.

Bibliography

Atkins A., *GWR goods train working, Vols.1 & 2*, Crecy, 2016 & 2017.

Board of Trade, Requirements for passenger lines and recommended for goods lines of the BoT in regard to railway construction and operation,1892.

Appendix to the Working Timetable, The Highland Railway, 1st May 1920.

General Appendix to the Working Time Tables, LMS, March 1937, p25.

General Appendix to the Rules & Regulations & Working Time Tables, LNER, 1st November 1947, p48-49.

General Appendix to the book of Rules & Regulations, GW, Sept 1920, p178-179.

General & Western Appendix to Working Timetable, SR, March 1934.

NSA, BR/HR/1-7: Minute Book, 2/8/93, p355/8.

Railways Archive, https://www.railwaysarchive.co.uk/

Regulation of Railways Act, 1889.

Requirements for passenger lines & recommendations for goods lines of the MOT in regard to railway construction & operation, HMSO, 1950.

Rolt L.T. C., *Red for Danger*, David & Charles, 1982.

Rule book, LMS 1933, reprinted 1939, Rule 16, p67.

Rule book, LNER, 1933, reprinted 1945, Rule 16, p15.

Rule book, Great Western Railway, 1933.

Rule book, Southern Railway, March 1934, pp20-21.

Rules for observance by employees British Railways, BR 1950 & reprinted 1962, Rule 16, p17.

Scott-Morgan J., *British independent light railways*, David & Charles, 1980.

Thomas D. St.J., & Whitehouse P., *The great days of the country railway,* D&C, 1986, p60.

Stirling D., 'The HR and mixed trains', *Highland Railway Journal* No. 36, p13-16.

Tatlow P., *Highland Railway Carriages & Wagons,* Noodle Books, 2014.

Thomas J., *The Skye line*, David & Charles, 1977.

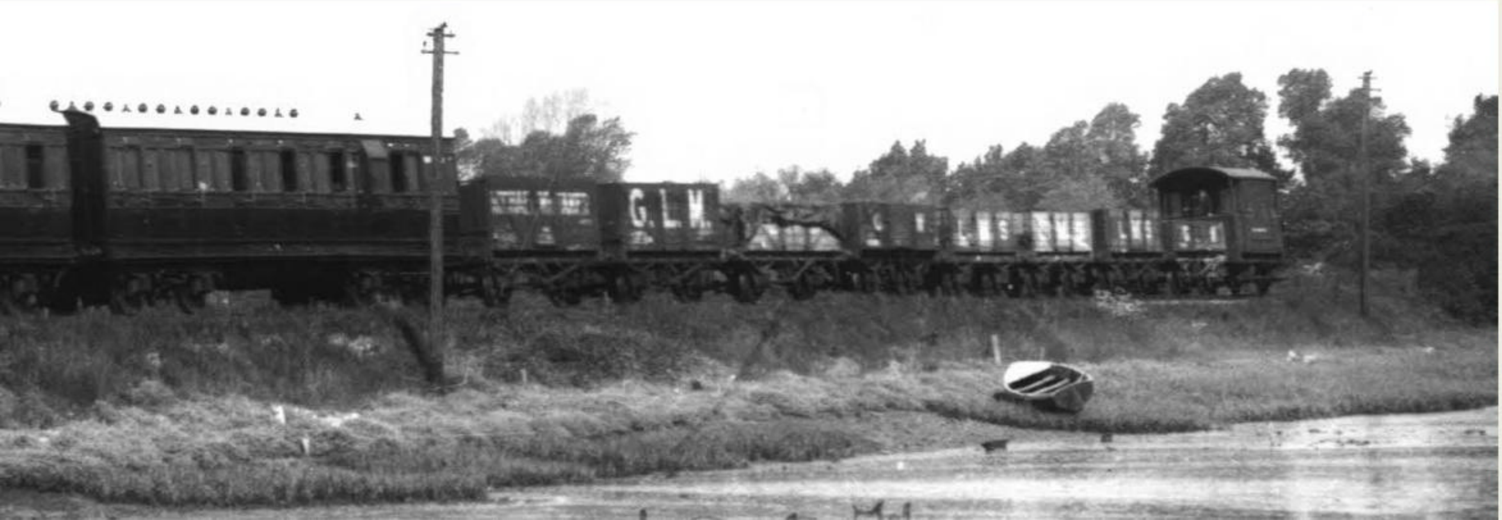
Working Time Table of freight trains, Northern Division, LMS, 23rd Sept 1929.

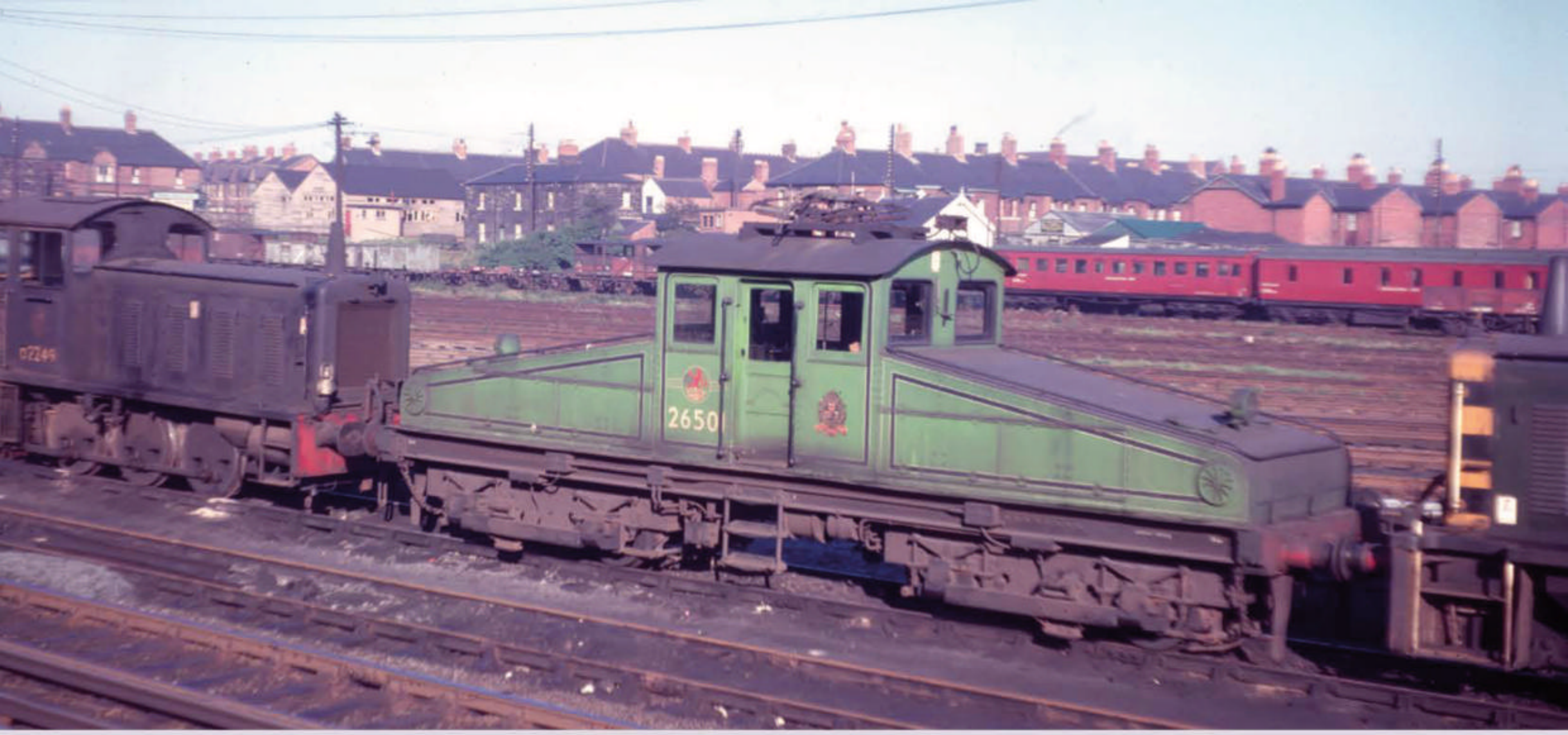
References

1. www.railwaysarchive.co.uk/
2. Tatlow p19-22
3. Act 1889.
4. Thomas, p107.
5. BR/HR/1-7: Minute Book, 2/8/93, p355/8.
6. Rolt, p187-193.
7. www.railwaysarchive.co.uk/
8. Highland.01, p53-54.
9. BOT.
10. Rule Books 1933/4,
11. LMS WTT 1937.
12. LNER WTT 1947.
13. GW WTT 1920.
14. SR WTT 1934.
15. Thomas & Whitehouse.
16. www.railwaysarchive.co.uk/
17. BR/HR/1-7: Minute Book, 2/8/93, p355/8.
18. Working Time Table 1929.
19. Scott-Morgan.

LBSCR 0-6-0T 'Terrier' No. B655 with a mixed train near Havant on the Hayling Island branch, possibly about 1930. The train is made up of a LSWR arc-roofed two-set, plus five wagons and a LBSCR brake van.
(Lens of Sutton, possibly by O. J. Morris)

No. B655 on Hayling Island branch again, but this time on 25th May 1932 with a mixed train near Langston, consisting of a LSWR semi-elliptical roofed two-set 38, with eight wagons and LBSCR brake van in tow.
(O. J. Morris, courtesy M. S. King)





Brush built two Bo-Bo locomotives for the NER's Newcastle Quayside electrification in 1904. The pair could collect current from either a pantograph or via the third rail and had equipment from BTH. No.26501 is seen after withdrawal in its final BR/NER hybrid livery.
(Class 47 Preservation Project Archive)

HOW FOUR BECA

SIMON LILLEY looks at the companies behind the provision of electrical equipment for the modernisation of the railways.

Introduction

As the British Transport Commission (BTC) embarked upon modernising the railways in 1955, it was able to call on four main suppliers when purchasing equipment for main line electric locomotives and multiple units. These were General Electric Company Ltd. (GEC), English Electric Co.Ltd. usually just known as English Electric, Metropolitan-Vickers (Metrovick) and British Thomson Houston (BTH). The last two were the two halves of Associated Electrical Industries (AEI) but operated separately for many years, often competing against each other for the same contracts.

In this article we will look at the history of these companies and their inter-relationship with this country's railways along with the people, personalities and events which meant that by the time the Modernisation Plan was completed in 1968 they had become one single entity, by way of corporate reorganisation, takeover and merger.

The origins of these companies are in some cases somewhat complex and their existence in some cases is linked to overseas investment and involvement, mainly from the United States.

1. General Electric Company

Gustav Binswanger and his brother Max emigrated to Britain from Bavaria setting up G. Binswanger in 1880, supplying electrical equipment from a shop in Great St. Thomas Apostle in the City of London. Gustav changed his surname to Byng and in 1886 the company became the General Electric Apparatus Company (G. Binswanger). Another German émigré, Hugo Hirst, born Hugo Hirsch, ran a successful electric light accessories department from a small shop in Mansion House.

Hirst's old employer, the Manchester Gas Ignition Co.Ltd., went bankrupt in 1888. Byng and Hirst bought their factory producing small items such as bells and switches. In August 1889 Hirst took British citizenship and the unincorporated General Electric Apparatus Company became the incorporated private limited liability company the General Electric Co.Ltd..

The initial share capital was £30,000. Half was owned by the Byngs, the other half by a financier called Newgass who had loaned them money to buy the Manchester factory. At the time of the share scheme, Hirst was an employee, but as his department grew, his salary increased to £700 per year. He was offered an increase to £750 and an annual increase of £50 per year for the next five years. Hirst rejected the deal, wanting a share of the capital, and submitted his resignation. After some argument, and Newgass's intervention he was offered a 20% stake in GEC paid for from his salary and share dividends. In 1893 Newgass was embroiled in a scandal involving Barings Bank leading to the Byngs and Hirst buying his shareholding.

Several years of growth saw profits in the year to March 1900 reach £77,000. That year saw two key developments: the company floated on the Stock Exchange and secondly GEC bought 42 acres of land at Whitton in Birmingham to concentrate manufacturing on one site. For five years GEC had been making electric motors under licence from Oerlikon in Switzerland. The Whitton factory also began making dynamos, motors and switchgear. Initially, the establishment of the Whitton factory affected profitability. In 1902, net profits dropped from £65,000 to £52,000 and the dividend was cut in half to 5%. Profits did not reach 1902 levels until 1910 and the dividend was not restored to 10% until 1913.

Following a power struggle, Hirst became Managing Director in 1906, replacing Byng. Hirst was supported in this by Max Railing. He was also German, joining GEC shortly after arriving in Britain, becoming a director in 1901. GEC also invested in Osram Lamp Works, initially taking a third share, which increased to a half share in 1909. Gustav Byng died in 1910 and succeeded by Hirst who was now Chairman and Managing Director.

The outbreak of war in 1914 impacted the company greatly. Civilian demand fell sharply, but was replaced by Government orders, to the point where 90% of company production was for the war effort. Consequently profits rose from 1915's £138,000 to £630,000 in 1921.

During the war, GEC bought the German-owned share of the lamp maker Osram, it becoming a key part of GEC's profit making. The deal was completed during the summer of 1916. London City and Midland Bank loaned GEC £260,000 to buy the remaining half share in Osram from the Public Trustee, the Government body which had taken over German-owned businesses in Britain.

A further acquisition in 1917 was Chamberlain & Hookam, an electric meter business. Arthur Chamberlain, part of the powerful Birmingham family, joined the board. GEC also moved into heavy electrical engineering taking over the Erith-based Fraser & Chalmers in 1918, enabling them to compete with BTH and Metrovick in this important market.

2. British Thomson Houston

British Thomson Houston was founded in 1896 by the American company Thomson Houston, part of General Electric of America. It had much of its capital held by Thomson Houston and was financed by loans from them. Soon after foundation BTH took over Laing Wharton & Down, formed in 1886 to sell Thomson Houston equipment in Britain.

BTH established its manufacturing site in Rugby, a location served by several railway companies, the London & North Western, Midland and Great Central Railways, with the added advantage of a nearby coalfield. BTH

ORMSKIRK
M 28302 M

The LMS in 1927 bought eleven three-car units for use on its services to Ormskirk. No.M28302M awaits its next journey back into Liverpool.
(Class 47 Preservation Project Archive)

AME ONE PART ONE

bought Glebe Farm, a 25-acre site, for £10,000. Work building the new factory started in January 1900 with equipment production there beginning in March 1902. The main output was steam turbines, motors, convertors and switchgear. The main contracts were for power supply equipment and work on railway and tramway electrification projects.

On the railway side, BTH along with British Westinghouse supplied equipment for the North Eastern Railway's (NER) 1903 North Tyneside electrification scheme. A year later, BTH electrical equipment was used by Brush in two electric locomotives for the NER as it electrified the Quayside line in Newcastle. The company also acted as a sub-contractor to the London, Brighton & South Coast Railway supplying switchgear in 1905 for its 6.7kV ac suburban electrification.

Before the Great War yearly profits were modest, ranging between £10,000 and £30,000. These and a cautious depreciation policy meant BTH could reduce its dependency on American loans. The start of war, however, changed that and like other companies profits rose sharply, reaching £400,000 before tax in 1919.

The 2-BIL units were built in several batches and used on the Southern's South Western and Central Section duties. Early units had English Electric traction motors and Metropolitan-Vickers control equipment; with the later ones all the equipment came from English Electric as on No.2065 seen here.
(Class 47 Preservation Project Archive)

3. Metropolitan-Vickers

Metropolitan-Vickers was another company having American origins, in this case with the American engineer George Westinghouse the driving force. Looking to break into the British market, he set up British Westinghouse in 1899. The Westinghouse name was already known here as the Westinghouse Air Brake Co. was a major exporter of electrical equipment to Britain. The initial capital was £1.5 million, of which £500,000 went to the American parent company in ordinary shares as payment for the exclusive rights to its electrical patents. To establish factories for electrical equipment production, £1 million was raised by selling 6% preference shares. Half were bought by the American company, the other half sold to the public. Work building the new company's factory on the Trafford Park estate near Manchester started in 1900 and production began in 1903. This first year of production saw a small profit made of £1,665, mainly due to what is described as optimistic accounting. A subsidiary company, Traction & Power Securities, was formed to boost railway electrification with some success, providing equipment to the Mersey Railway whose newly electrified lines began operating on 3rd May 1903. The Metropolitan Railway in London also ordered the company's equipment, including eight turbo-generator sets for Lots Road power station.

The company was rocked when on 28th October 1907 American Westinghouse went

Lewes 'B'
3086
73
DAA 4GRI

4-GRI unit No.3086 passing Lewes 'B' signal box whilst working the 4-GRI railtour on 6th February 1971. These units were converted in the 1960s from 4-RES units and retained the English Electric equipment they were built with in 1937.
(Class 47 Preservation Project Archive)

into receivership. For some weeks the British company's future hung in the balance but it negotiated a £250,000 mortgage on the Trafford Park site keeping it afloat. The following year it designed and supplied three Bo-Bo locomotives for the metre gauge Thamhavn-Lokken line in Norway which operated on the 15,000V 50 cycle three-phase/6,600V 25 cycle single-phase system. Two of the three locomotives survived until 1963. Westinghouse was also the equipment supplier when the Midland Railway electrified its Lancaster Castle to Morecambe line in September 1908.

In September 1909 George Westinghouse, who had remained chairman of the British company even though he did not attend board meetings, was replaced as chairman. In May 1910 he was removed from the board entirely.

On the outbreak of war, the Trafford Park works turned to armaments manufacture. This was in addition to producing ship and submarine turbines and narrow gauge petrol locomotives used on roughly constructed tracks delivering ammunition to the trenches.

For British Westinghouse the prevalent anti-foreigner atmosphere caused problems and they were refused admission to the recently formed Federation of British Industry in 1916. The directors knew further capital would be required after the war and it would be wise for the company's controlling interest to be British held. For help they turned to the financier Dudley Docker who was involved in a number of companies including Metropolitan Railway Carriage & Wagon Co.Ltd., Birmingham Small Arms (BSA), the Stratford-upon-Avon Midland & Junction Railway and the Metropolitan Railway.

In 1917 Metropolitan Railway Carriage & Wagon Co.Ltd. bought a controlling interest in the group. Later that year the company merged with Vickers. With them controling British Westinghouse, the Vickers board looked to change its new acquisition's name, deciding at its meeting on 18th July 1918 it should be Vickers Electrical. However, when this was put to shareholders on 7th August, one shareholder moved to amend the name to Metropolitan Vickers which was agreed.

Two years later, Docker sold control of Metrovick to Vickers for £13 million. Although Vickers said the company was now British owned and would stand on its own two feet, a five-year agreement was concluded with American Westinghouse for continued technical collaboration and a promise by the British to keep out of the American, Canadian and Central American markets. In return, the Americans would stay away from Britain and the Empire.

4. English Electric

The youngest of the four companies was English Electric, combining several disparate companies. One was Dick, Kerr Ltd. which supplied equipment to the Lancashire & Yorkshire Railway for its Liverpool to Southport third rail electrification scheme in 1903, as well the traction motors for the electric multiple units built for the line. A decade later, to showcase its equipment in order to secure a contract in Brazil, it electrified the Lancashire & Yorkshire's Holcombe Brook branch with a 3,000V dc overhead system in 1913.

The company expanded rapidly during the war. It bought Williams & Robinson Ltd. in 1916, manufacturers of steam turbines and oil engines and the same year bought from the Government the German firm AEG's British subsidiary. This was followed in 1917 by the acquisition of the Preston-based United Electric Car Co.Ltd., makers of trams and railway wagons. Lastly in 1918 it added the Phoenix Dynamo Manufacturing Co. from Bradford to its empire.

The creation of English Electric added to this group of companies the Coventry Ordnance Works and Siemens Dynamo Works based in Stafford. The new company was incorporated on 14th December 1918; the directors included Claud Cayley, chairman of Dick, Kerr Ltd., Bernard Firth, chairman of Thos. Firth & Sons and Lt.Col. J. H. Mansell, Managing Director of Coventry Ordnance Works Ltd.

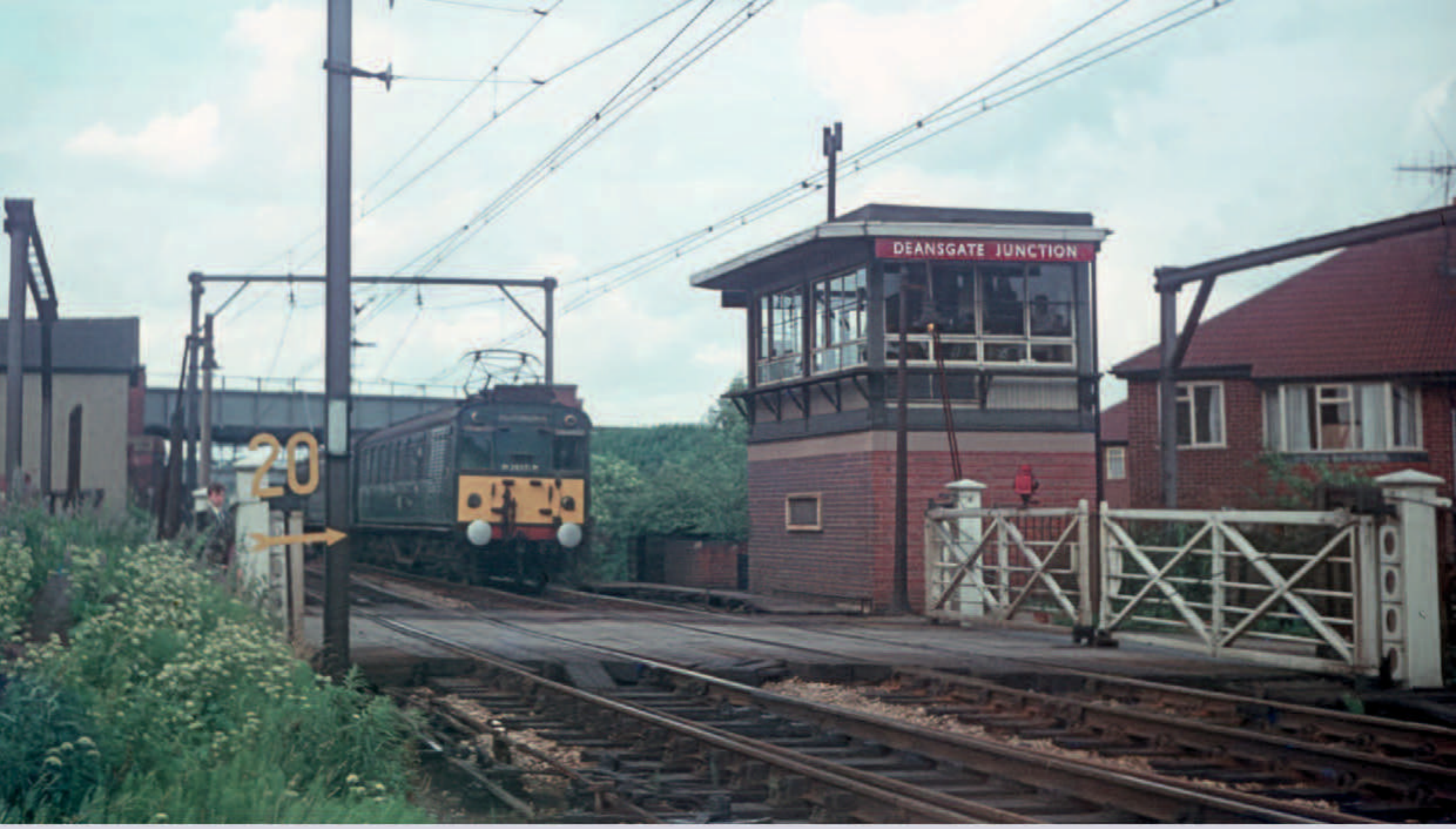
The creation of Associated Electrical Industries

The driving force behind AEI's creation was the American Gerard Swope, President of General Electric of America. Visiting Britain in November 1921 he discussed the idea of combining BTH, in which GE of America had a financial interest, with GEC chairman Hugo Hirst. Hirst rejected the idea and he was supported by the GEC board at its meeting on 11th May 1922.

Swope was not discouraged and in 1926 looked at ways of combining BTH, Metrovick, GEC and English Electric. The first part was achieved with him buying a controlling interest in Metrovick from Vickers Ltd., registering the purchase in Dudley Docker's name. Vickers Ltd. accepted the deal on 15th February 1928, with a price of £1,300,000. This consisted of £375,370 8% cumulative preference shares at 48s 9d each, 265,300 £1 ordinary shares at 25s 3d each and all the 500,000 1s deferred shares at a cost of £50,000. Only the preference and deferred shares carried voting rights. This gave GE of America 78% of the Metrovick voting capital. Vickers still had 25,000 preference shares and 100,000 ordinary shares and gave an undertaking that should they choose to sell these shares, GE of America would have first refusal, meaning both BTH and Metrovick were now controlled by GE of America.

The next day Swope wrote to Docker saying he had instructed Midland Bank to hold 40,000 ordinary shares valued at 25s 3d (£50,500). He wanted Docker to accept this as "very inadequate compensation for the assistance he had been".

Rumours circulated about the exact nature of the deal, and who owned what. Vickers chairman, General Lawrence,



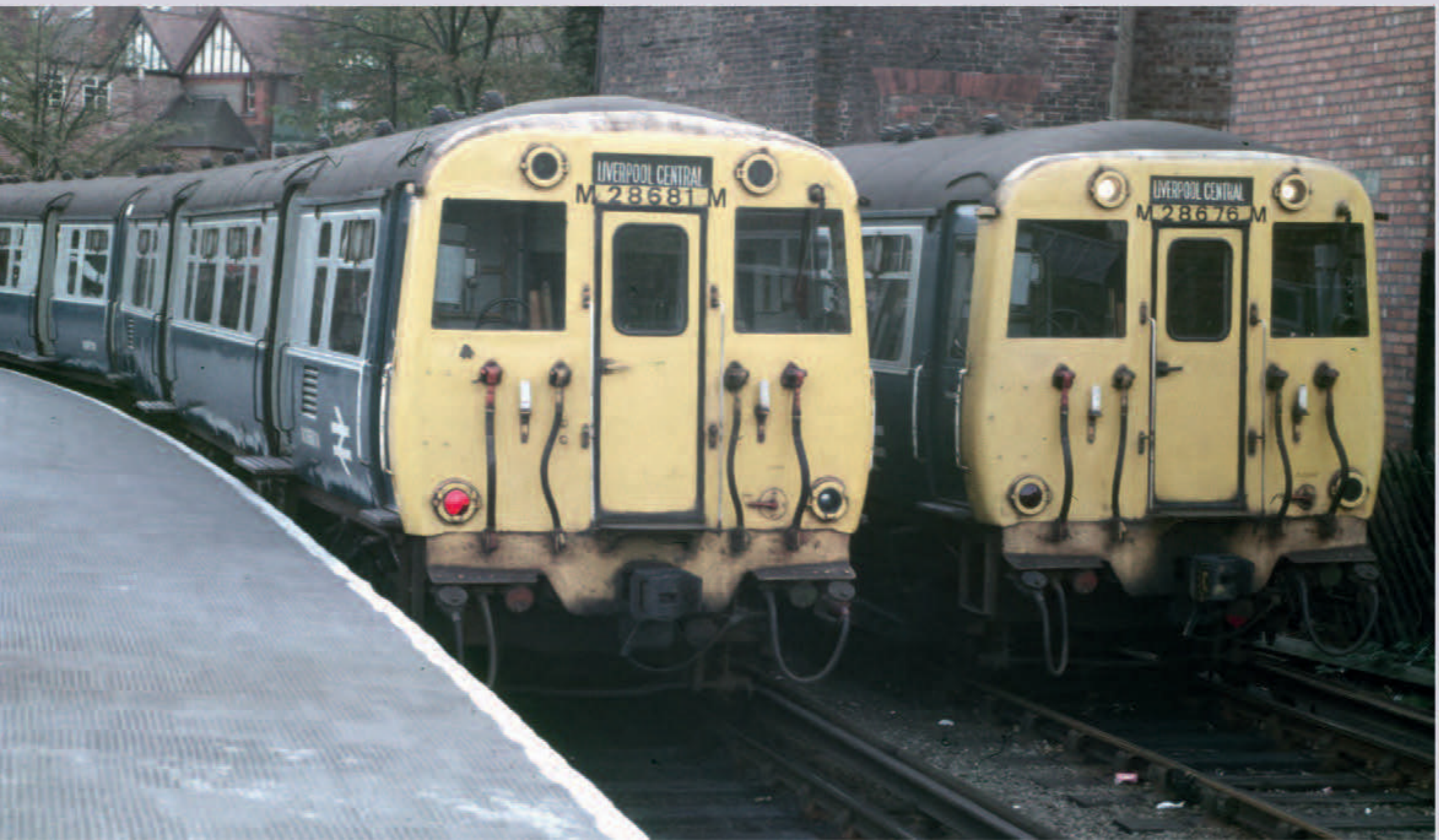
The MSJA Committee owned by the LMS and LNER electrified the line from Manchester to Altrincham in 1927. Unit M29235 passes Deansgate Junction in 1967. It still has its original diamond pattern pantograph. These units lasted until 1971 when the line was converted to 25kV ac operation. (Class 47 Preservation Project Archive)

became concerned when he read newspaper reports that Docker had bought control of Metrovick when he knew the controlling interest had been sold to GE of America. On 14th March, with the Vickers General Meeting scheduled for 29th March, he cabled Swope for clarification, knowing questions could be asked at the meeting. Swope said Docker had control and would co-operate with BTH to stabilise the industry. In reality only the 40,000 shares were in Docker's hands, the rest were subject to GE of America's instructions even though Docker's name was on the transfer. Metrovick chairman Sir Philip Nash believed Vickers had sold control to the GE of America subsidiary IGE, but now control lay with Docker.

On 12th July the Metrovick board heard that negotiations had started with BTH over co-operation in engineering, manufacturing and sales. The first proposal was for a holding company having a controlling interest in both companies, with shareholders offered a conversion scheme. In the background, the merchant bank Morgan Grenfell was buying Metrovick shares, strengthening Swope's negotiating position. Swope wanted these shares held by nominees, something Morgan Grenfell was unhappy with, but they agreed to put them in the hands of Cole Laming & Hoare, the stockbrokers buying the shares for Morgan Grenfell.

By October 1929 negotiations had reached their final stages. The holding company

The first Class 503 units were introduced in 1938 and additional units built in 1956. Towards the end of their lives Nos. M28681M and M28676M wait at New Brighton on the Wirral peninsula for their next working back to Liverpool. (Class 47 Preservation Project Archive)



proposal had been discarded; instead Swope found that stamp duty could be saved by using unissued Metrovick shares. To maintain the façade of Britishness, most people still believed Metrovick was controlled by Dudley Docker; Swope wanted to call the company Empire Electrical but this was rejected by the Board of Trade and Associated Electrical Industries was chosen instead.

The deal saw GE of America hold 54% of the 4.1 million company shares. BTH £1 shares were sold to Metrovick at 12s each, meaning BTH had just a quarter of the share capital. GE of America was effectively selling to a company they already owned. Docker was excluded and earned commission of 7½d on his 200,000 shares, giving him £6,250.

Following AEI's creation, the choice to head the new company was between Viscount Weir, a Lloyds Bank director, and Felix Pole, General Manager of the Great Western Railway. Swope was lukewarm about Pole, mainly due to the conditions Pole was putting on joining AEI. The concern Pole had about the loss of his pension seems to have irritated Swope in particular. Even so, Pole was appointed.

There was, though, little serious effort to integrate the two businesses for many years and they often competed against each other for the same work. Over the two companies was an executive committee to establish a central direction. Pole felt the right approach was to maintain the goodwill and individuality of the companies. The slump following the Wall Street Crash in 1929 made co-operation harder as both companies vehemently opposed any changes and held on to as much business as they could.

The inter-war years

At the war's end in November 1918, GEC began expanding its operations, financed by share issues. In four years their share capital rose from £1,500,000 in 1918 to £8,900,000 in 1922. A new London headquarters, Magnet House in Kingsway, opened and a new research facility in Wembley. The workforce grew from 15,000 in 1919 to 40,000 in 1939. Profits in the decade from 1924/25 to 1934/35 averaged £311,000 per annum.

As part of its extension of its suburban electrification in 1922, the LBSCR ordered more rolling stock including twenty motor luggage vans. These were built by the Metropolitan Carriage Wagon & Finance Co.Ltd. and came with GEC-supplied equipment.

The immediate post-war era was less successful for BTH. New factories were established or existing ones expanded at Rugby, Willesden, Coventry, Birmingham, Chesterfield and Lutterworth. The company also moved into domestic appliance and radio production. Further capital of £3 million was raised, half from GE in America, the remainder from the City of London. Post-war profits only exceeded the 1919 peak of £202,000 twice. Profits in 1928 fell from £167,000 to £70,000 with the heavy electrical and radio activities losing £43,000, all its profits coming from the lamp business which made £210,000.

Shortly before grouping the NER, which had already completed several electrification schemes, looked to electrify the York to Newcastle section of the East Coast Main Line. To that end Sir Vincent Raven built a 2-Co-2 electric locomotive unveiled on 30th May 1922. The electrical equipment was supplied by Metrovick. It ran trial trips between Newport and Shildon, which the NER had electrified in 1916, and appeared at the 1925 Stockton & Darlington centenary celebrations. It was then stored, surviving until nationalisation and broken up in 1951 having run just over 2,200 miles.

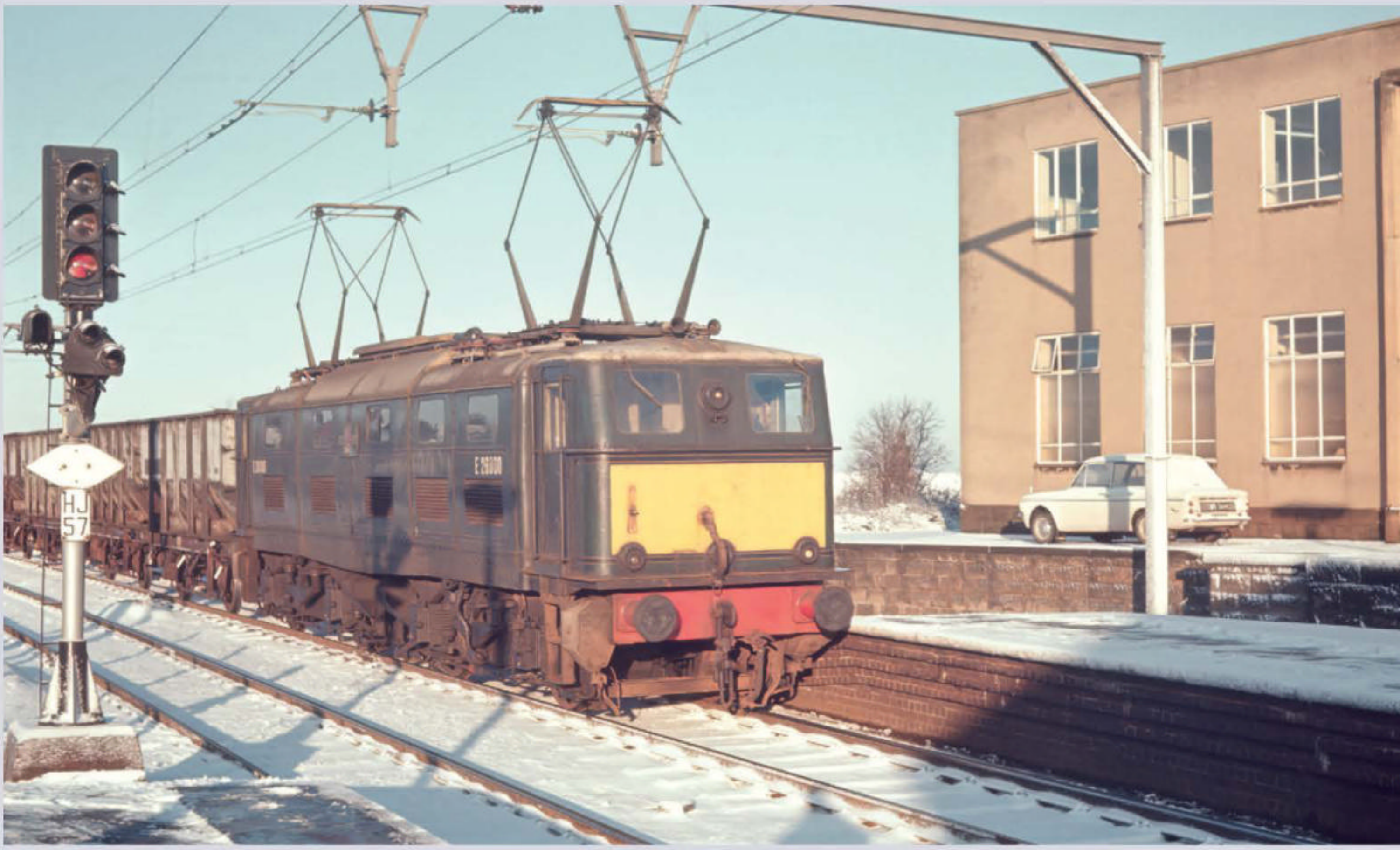
Other railway work undertaken by Metrovick during this period included supplying the London Midland & Scottish Railway with traction motors for its newly built London area suburban service stock in 1927. A further eleven units went to work on its Liverpool to Ormskirk line.

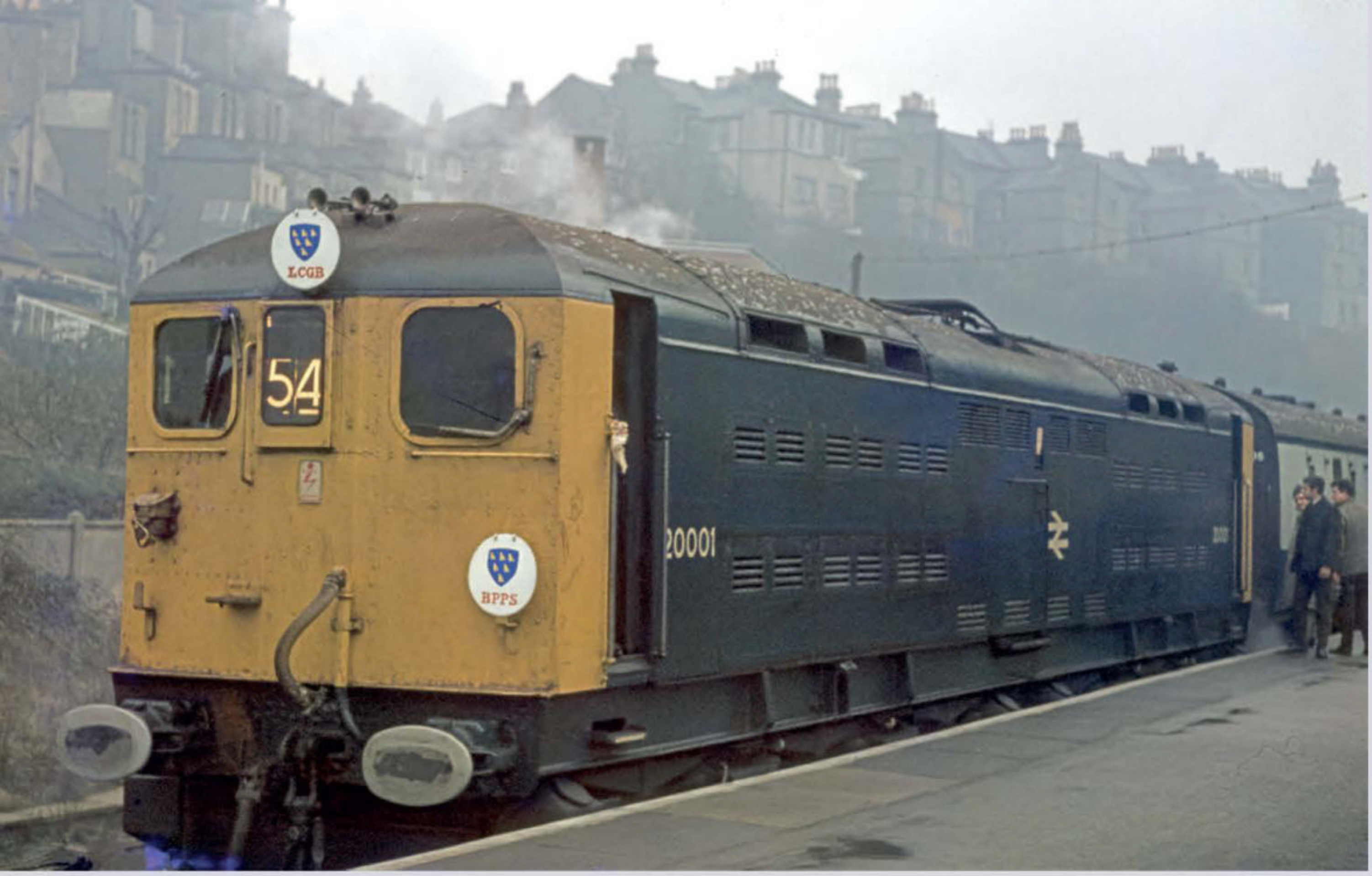
In this period Siemens and English Electric concluded an agreement which left heavy electrical equipment supply to English Electric and 'light' industry to Siemens. This caused a major misjudgement by English Electric in 1927 which, when seeking extra funds urgently, sold its half share in Siemens & English Electric Lamps Ltd. to Siemens for £75,000. The twenties and thirties were when the main electrical companies found the lamp side of their businesses the most lucrative. Other changes included closing the Coventry Ordnance Works in 1928, selling off the site two years later.

The LBSCR overhead system did not survive grouping very long, as the Southern Railway opted for third-rail electrification and the last train to use the overhead system ran on 22nd September 1929. The equipment was removed shortly after, though some of the support structures remained for some years.

English Electric's profits since foundation had been modest. By the end of the twenties problems were mounting. Management had exercised insufficient cost control over the group's businesses, preferring limited interference with each organisation. By 1929 losses of £47,000 were recorded. The

Pioneer EM1 locomotive No.E26000 *Tommy* at Penistone in 1969 shortly before it was withdrawn. It was cut up at Crewe in November 1972.
(Class 47 Preservation Project Archive)





No.20001 at Lewes on 4th January 1969, its last hurrah in service. It was the first of the Southern Railway's booster locomotives and the only one of the three to be painted in 'rail blue' livery. (Class 47 Preservation Project Archive)

bankers Lazards stepped in with £850,000 of new capital giving them in return a 60% shareholding in the company. There was over-capacity in the heavy electrical equipment industry and the worst recession in recent history, following the 1929 Wall Street Crash, was biting. In the four years to 1930, English Electric made combined losses totalling £431,000 and the share price fell to 3s 9d each.

Arriving in 1930 at English Electric from Metrovick as Managing Director was George Nelson, who put in place a recovery plan. The headquarters was moved to Stafford and production reorganised at the various factories. The turbo-alternator work went to Rugby from Preston and traction motor manufacturing to Bradford. Sections of the Rugby factory were closed due to lack of work. By 1934 the business had been turned around and a profit of £34,000 was recorded.

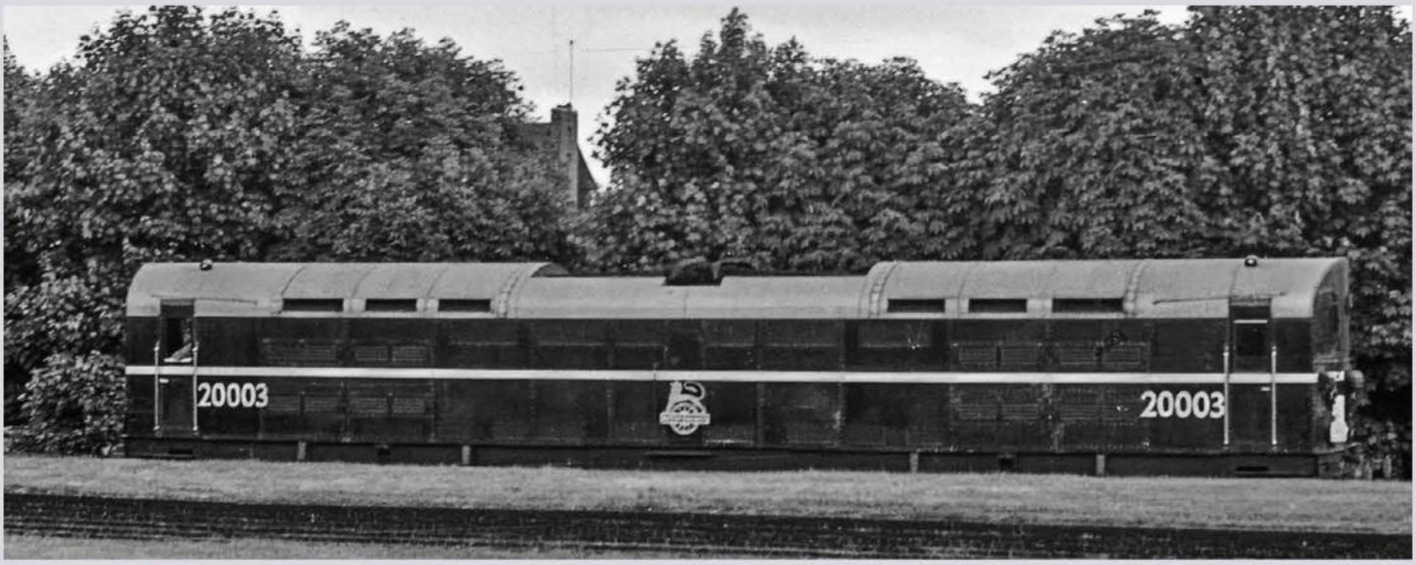
The slump also hit AEI hard. Both BTH and Metrovick exported much of their production and the value of their exports dropped greatly from £18 million in 1930 to £12 million in 1931 and £9.5 million a year later. Consequently, profits fell from £189,000 in 1930 to £110,000 in 1933. The shareholder dividend was cut from 6% in 1930 to 3% in 1933.

Metrovick was one of the first companies exporting to the Soviet Union. In March 1933 six employees were arrested in Leningrad accused of spying, with the Government halting trade with the Soviet Union. Of the six, two were held in prison but released on 2nd July and Metrovick could resume trade with the Soviets. At the time around 10% of Trafford Park's workforce worked on manufacturing equipment for the Soviet Union.

Between 1931 and 1934 Hungarian State Railways electrified the Budapest to Hegyeshalom route, a distance of 120 miles. The scheme used overhead wires at 16kV ac 50 cycles. It was the world's first single phase industrial frequency electrification project using locomotives.

Metrovick supplied static equipment for the scheme and provided Ganz & Co. of Budapest with pantographs, control equipment and 30 2,500hp traction motors for 26 locomotives with four motors as spares. Two different locomotive types were built at the Royal Hungarian State engineering works. Each type weighed 90 tons, one was a 1-D-1

A third Co-Co booster locomotive was ordered by the Southern Railway but not completed until after nationalisation. It is seen here in the 1950s in the BR colours of the time of black and silver.
(Class 47 Preservation Project Archive)



passenger locomotive, the other an all powered six-axle freight locomotive. Both types used a frame-mounted traction motor driving the wheels through a jackshaft.

The Government was keeping a close eye on railway affairs, including the various electrification schemes being completed. Between 1921 and 1931 there were three separate inquiries into electrification and the systems to be used. The first in 1921 chaired by Alexander Kennedy recommended a standard voltage of 1,500V dc for either overhead or third rail collection. This could be reduced to 750V dc where it could be demonstrated this was the best course of action.

In 1927 the Pringle Committee reviewed these recommendations and reaffirmed the standard voltages, as well as making recommendations on electric locomotive standardisation. It noted the SR was removing the overhead electrification installed by the LBSCR in favour of the third-rail system used elsewhere on the company's lines.

The last inquiry was chaired by Lord Weir and reported in March 1931. It too reaffirmed the previous reports' conclusions regarding voltages and equipment. It saw several advantages to electrification not only in financial terms but with speed, comfort and amenity.

Using his powers in the Railways Act 1921, in 1932 the Minister of Transport John Pybus made the Standardisation of Electrification order. This permitted only 1,500V dc overhead or 750V dc third-rail electrification. In exceptional circumstances 3,000V dc could be used.

The 1,500V dc overhead voltage was used by the LNER and LMS representing the Manchester South Junction & Altrincham Railway (MSJ&AR) Committee to electrify its route from Manchester to Altrincham. Twenty-two three-car EMUs and two spare power cars were built by Metropolitan-Cammell with GEC equipment to LMS designs for the new service, which started on 11th May 1931. They lasted until 1971 when the line was converted to 25kV ac.

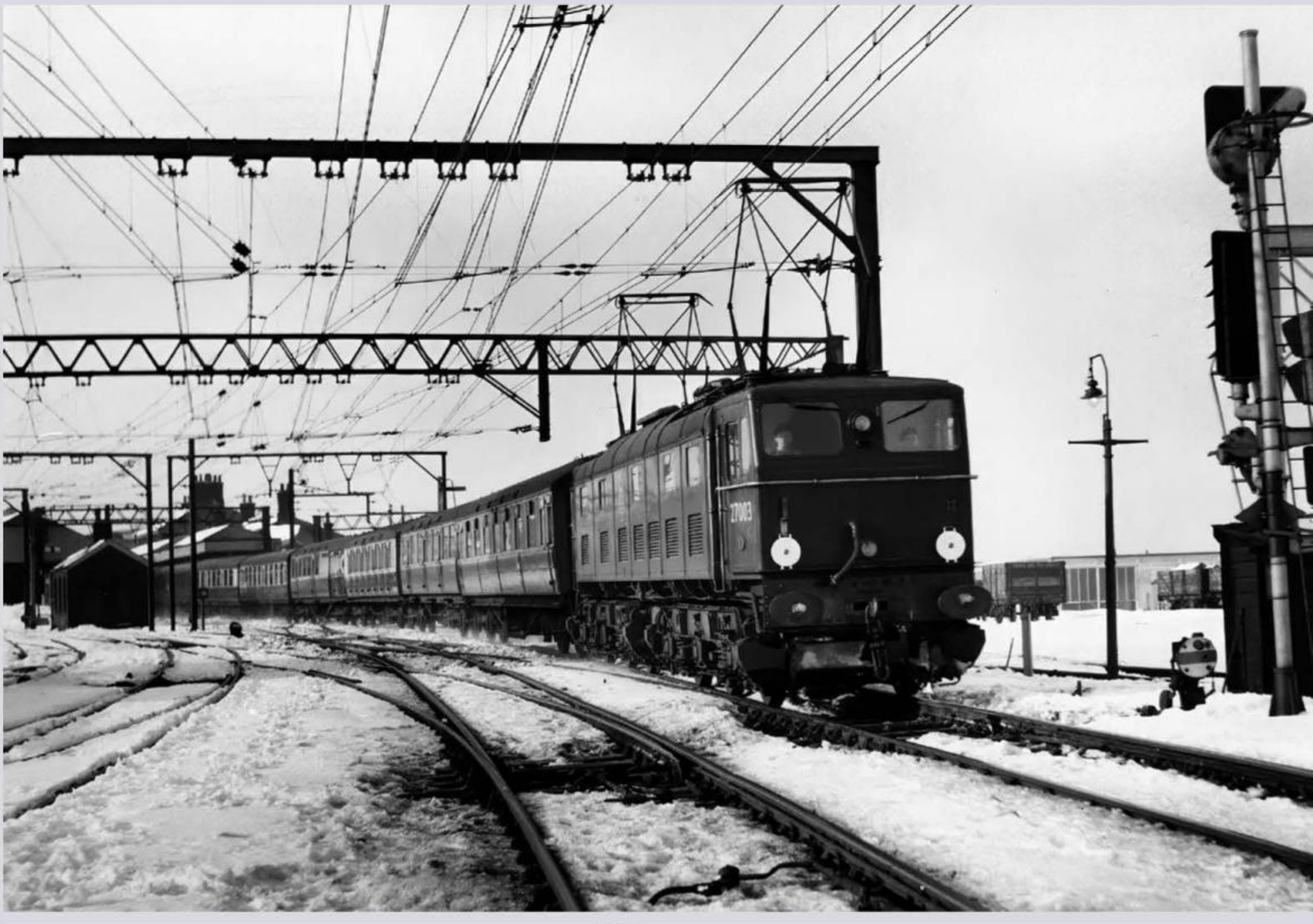
The slump of the 1930s hit the railways hard. Traffic especially freight was impacted and in 1935, the London & North Eastern Railway de-electrified the Newport–Shildon line. The overhead equipment needed replacing and traffic levels did not justify its retention.

As the SR extended its electrified network, it used equipment from BTH, Metrovick and English Electric. The 3-SUBs of 1925 were built with Metrovick equipment, as were the 4-LAVs of 1931. BTH was used for the 6-PAN units introduced in 1935. The same year, the initial 2-BILs had Metrovick equipment, the later ones from 1936 onwards having English Electric parts. Metrovick was also the supplier for the 4-COR, 4-RES and 4-BUF stock introduced from 1937 onwards. The 2-HAL units built for the extension of electrification to Gillingham in 1939 had English Electric equipment.

The company's senior management was concerned at the proliferation of different equipment suppliers. Both General Manager Sir Herbert Walker and Alfred Raworth, Electrical Engineer for New Works, wanted to standardise on one make. The result was discussions with several companies over agreeing a long-term supply contract.

Walker and Raworth had known George Nelson since his time at Metrovick's Traction Division. When the SR first approached English Electric about a long-term supply contract, Nelson – aware of the state of English Electric – said he would only consider such a commitment if in conjunction with Metrovick, knowing of its experience in this work. Metrovick thought they would better off if they competed with rather than co-operated with English Electric and rejected the proposition. Co-operation would mean that Metrovick secured only part of the work on offer, whereas competition could mean securing it all. Although Nelson tried to persuade them otherwise, Metrovick would not budge, leaving the field open to English Electric. The SR Board authorised the first ten-year agreement with them on 25th July 1935, effective from 15th January 1936. It was an arrangement renewed several times over the next 30 years, well into British Railways days.

The SR's Locomotive and Electrical Committee met on 7th October 1936. One agenda item was a report from Raworth. He



The larger EM2 Co-Co locomotives were built for express passenger work on the Woodhead route. No.27003 heads an up Harwich boat train through Penistone on 26th February 1955. They were sold to The Netherlands in 1969.
(Kenneth Field/Pendragon Collection)

proposed building two electric locomotives for the Victoria to Newhaven boat trains and other freight and passenger work. They would cost an estimated £31,000, based on the supply agreement with English Electric. The board gave its assent the following day and the design work began at Ashford in 1939.

The LMS's Wirral lines electrification completed in 1938 saw the Derby-built EMU stock (in BR days Class 503) given Metrovick electrical equipment and BTH traction motors. The LMS also built new units for the Southport line (later Class 502) with English Electric traction motors, the last of which entered service in 1943.

Other companies looked at electrification for their future traction needs. The LNER decided to electrify its route between Manchester and Sheffield at 1,500V dc and its board authorised an order on 16th January 1939 for 70 Bo+Bo locomotives using Metrovick equipment to be built at Doncaster.

Profits at AEI recovered in the second half of the decade, averaging £526,000 between 1935 and 1939. The Government's rearmament programme, given the growing threat to peace from Germany, was a key factor in the improvement. AEI began developing automatic pilots for aircraft in 1936, radar in 1937, along with guns and gun mountings. This was in addition to its normal range of civilian goods which the military could also use.

English Electric moved into aircraft production in 1938 as the country increased war preparations. In August 1938 the Air Ministry authorised extensions to English Electric's Preston factory and began building an order for 75 Handley Page Hampden bombers. This diversification helped the company achieve record profits. For the first time a 10% dividend was paid on the ordinary shares and the share price reached 25s.

GEC's profits increased to an average of £727,000 per annum in the four years before the war in 1939, also as a direct consequence of the rearmament programme.

ELECTRICAL EQUIPMENT
BY
METROPOLITAN
Vickers
ELECTRICAL
CO. LTD.
MANCHESTER & SHEFFIELD
ENGLAND.

Fixed at solebar level in the middle of the EM1 and EM2 locomotives was this fine builders' plate showing the origins of the electrical equipment, made appropriately enough in Manchester and Sheffield. (Simon Lilley)

The war years

The outbreak of war in Europe on 3rd September 1939 again impacted both the electrical industry and the railways. The rail network came under the control of the Railway Executive Committe, and again the electrical industry began concentrating on armament related production. The effects of war were soon felt: on 2nd November 1939 the LNER cut its electric locomotive order to just one. Work progressed on this locomotive and No.6701 was unveiled in February 1941. The main electrical equipment came from Metrovick. After initial tests between Manchester and Altrincham it was stored until the end of the war.

This was followed by the Southern completing No.CC1 which was taken into stock on 26th June 1941, construction having been delayed as the drawing office at Ashford had been engaged on war work. It used a booster system incorporating a flywheel which stored energy to drive a motor generator, enabling the locomotive to traverse gaps in the third rail at points or level crossings. The traction equipment came from English Electric's Bradford factory.

GEC suffered several major blows in 1942. During the year four senior managers died: Max Railing, Arthur Chamberlain, Sir John Hewett and James Fraser.

In a move that would have effects later, in 1942 English Electric bought the engine maker D. Napier & Sons Ltd. Nelson's son, known as young George, became its Managing Director.

Overall, the company's contribution to the war effort was huge, worth £110 million, with D. Napier & Sons Ltd. contributing a further £45 million. By 1945 their asset value had risen to £16.5 million (including Napier's) from £7 million. The workforce, excluding the 2,500 who had joined the forces, had risen to 30,000. In between times. In 1943 Nelson was knighted for services to the Ministry of Aircraft Production and Ministry of Supply.

A further blow was suffered by GEC when Hirst died on 22nd January 1943. He was succeeded as chairman by Harry Railing, brother of Max, and as managing director by his son-in-law Leslie Gamage.

Unlike in World War I, the Government was aware of businesses making excessive profits on armaments and other war equipment production. An Excessive Profits Tax was introduced. It proved effective, for whilst AEI's output increased between 1940 and 1945, its profits dropped from £1.7 million to £1.57 million in that period. AEI's Finance Committee, against Felix Pole's advice, sought to reduce its tax liabilities. By selling 10½% of BTH shares, under Inland Revenue rules BTH was no longer considered a subsidiary; AEI and BTH could then select separately the most advantageous base period for calculating the Excessive Profits Tax. The shares were sold to the Prudential and bought back after the war.

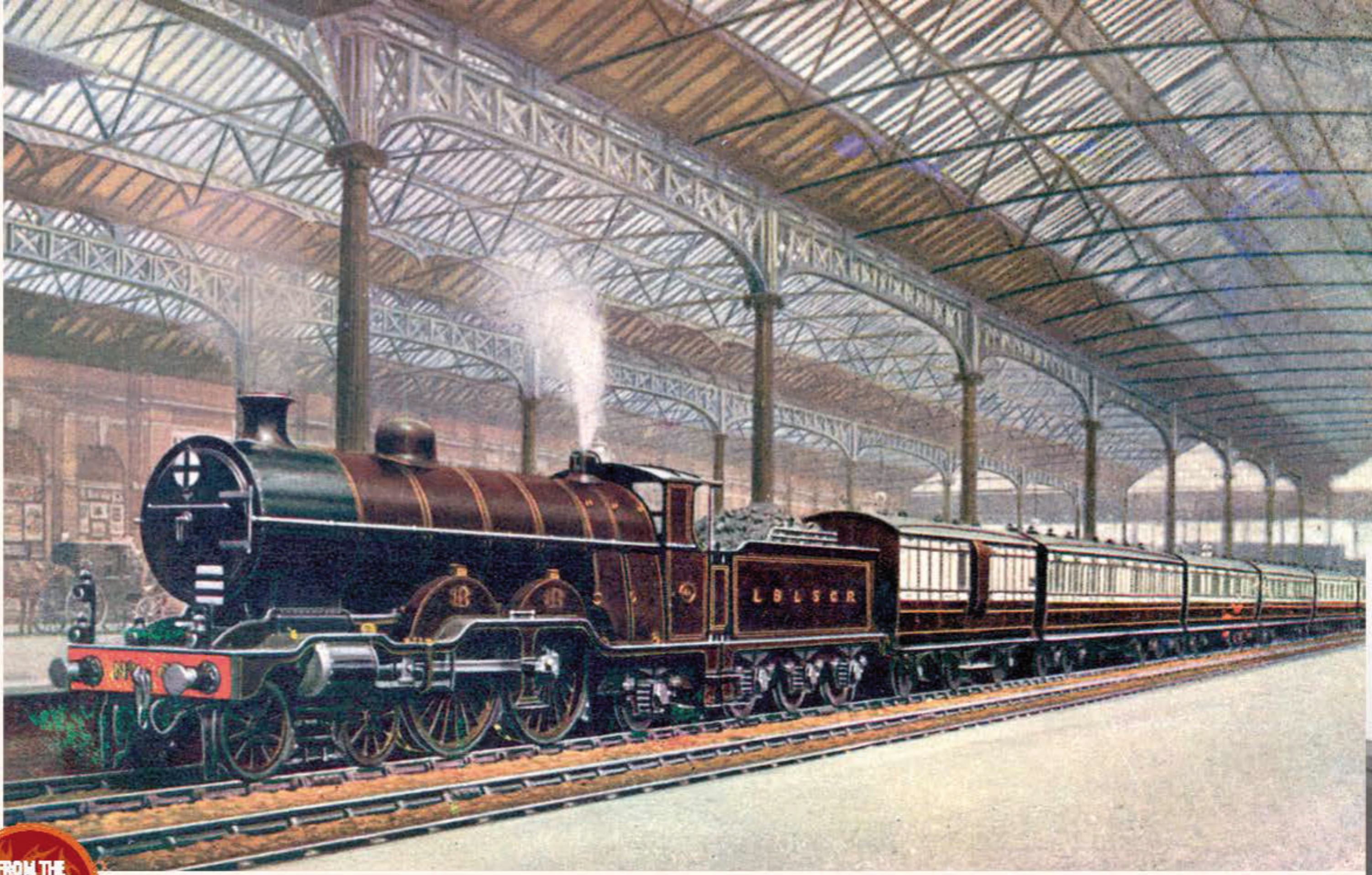
GEC similarly did not see a large increase in profits due to wartime production. Its 1944/45 profits at £1.9 million were almost the same as those in 1939/40. By comparison English Electric's, which had been around half those of GEC and AEI in 1939, were only £70,000 less in 1945.

Towards the end of his tenure as the SR's Chief Electrical Engineer, Raworth produced a report in May 1944 entitled 'Proposed Extensions of Electrification'. The company should electrify its routes to the east of, and including, the line between Basingstoke and Southampton. The company by 1950 would have 1,249 steam locomotives over 40 years old and due for renewal and their replacement would cost £5.6 million. If the lines were electrified, using electric locomotives and multiple units instead of steam, it would cost a similar amount. Electrification's main advantage was reduced operating costs. His calculations based on the steam train miles in the year to 2nd September 1939 showed that these would be reduced by almost half as electric locomotives would be powerful enough to handle all trains unassisted.

Two electric locomotive types were identified. For passenger and freight workings, the locomotives would be the same as No.CC1, Raworth's report identified a need for 413 of these locomotives at £11,700 each, a total of £4,832,100. Electric traction would enable a significant increase in overall speeds compared with existing steam locomotives. Also needed were 55 electric shunters. These Bo-Bos would weigh around 65 tons, using the same type of electrical equipment as used in the main line locomotives. Their cost was estimated at £8,000 each.

At the SR board meeting on 21st December 1944, general manager Eustace Missenden advised the directors that the 1935 agreement with English Electric would soon expire. The current agreement had only been in place for four years when war interrupted the regular demand for traction equipment, leaving unabsorbed various development costs. Furthermore, English Electric had incurred considerable expenditure regarding the two electric locomotives, which in the absence of further orders it would be unable to recoup. The SR had been unable to realise the full advantages of the co-operation and planning of earlier years. The board agreed that the existing arrangements be extended for a further ten years.

(to be continued)



FROM THE PENDRAGON ARCHIVES

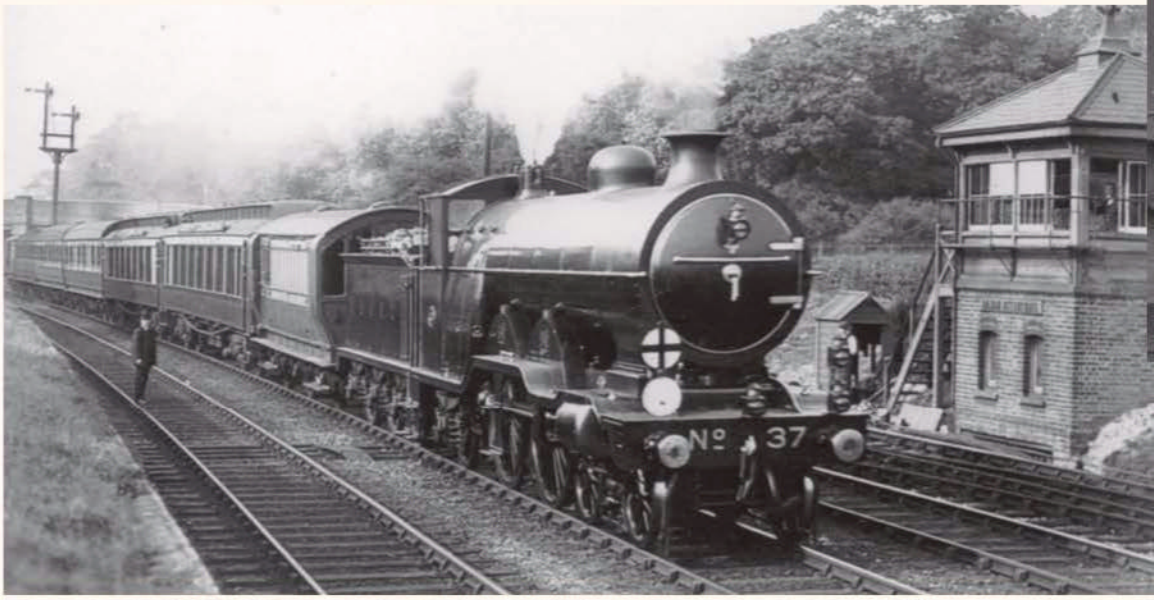
THE BRIGHTON ATLANTICS

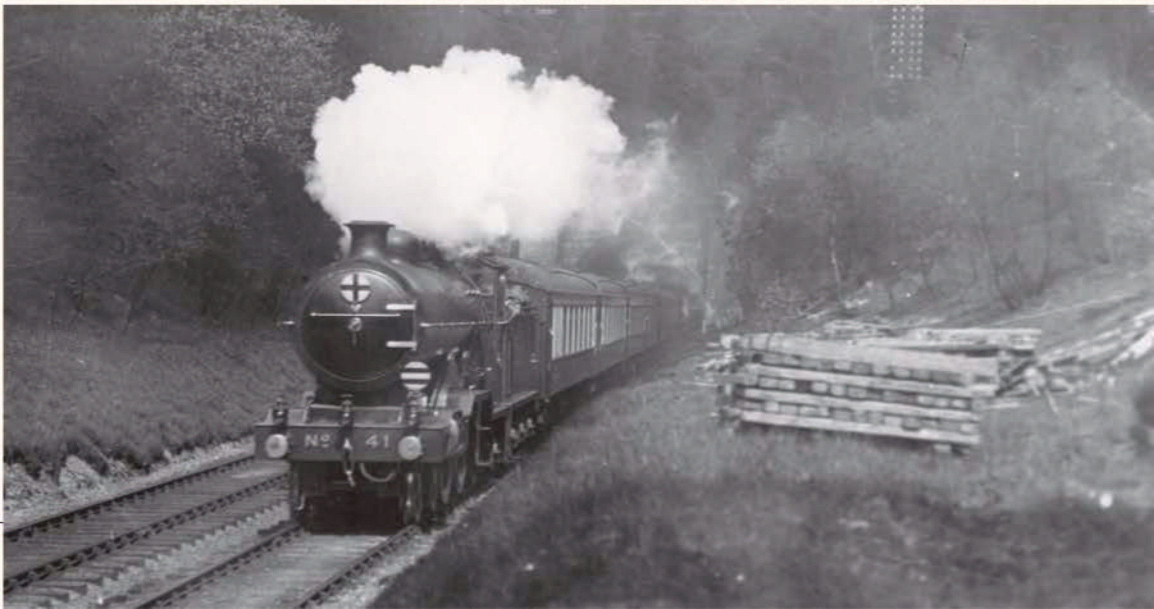
A notable recent event in the 'heritage' world has been the re-creation of a London, Brighton & South Coast Railway Atlantic locomotive and its entry into traffic. Here are a few pictures of these rather elegantly impressive locomotives.

TOP: **When the class appeared in 1905 observers might have commented on their resemblance to the Great Northern Railway's 4-4-2s of three years earlier – and they would be right: the LBSCR's Locomotive Superintendent Douglas Earle Marsh had been assistant to Henry Ivatt on the GNR and realised the Atlantic type would be ideal for the powerful and fast express motive power required by the Brighton. In the company's new umber livery with gold lining, No.40 is depicted with an express at Victoria c1908.** (LPC postcard)

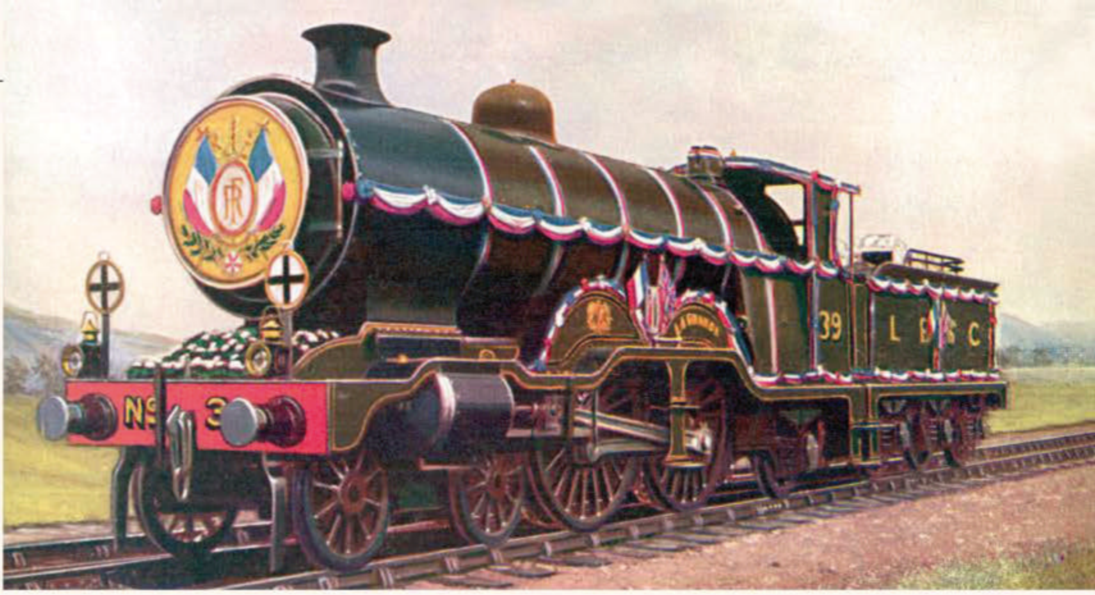
MIDDLE: **No.37 speeds the 3.40pm Victoria–Brighton express out of London near Balham c1910.** (F. E. Mackay)

BOTTOM: **No.41 is in charge of the 'Southern Belle' leaving Clayton Tunnel.**

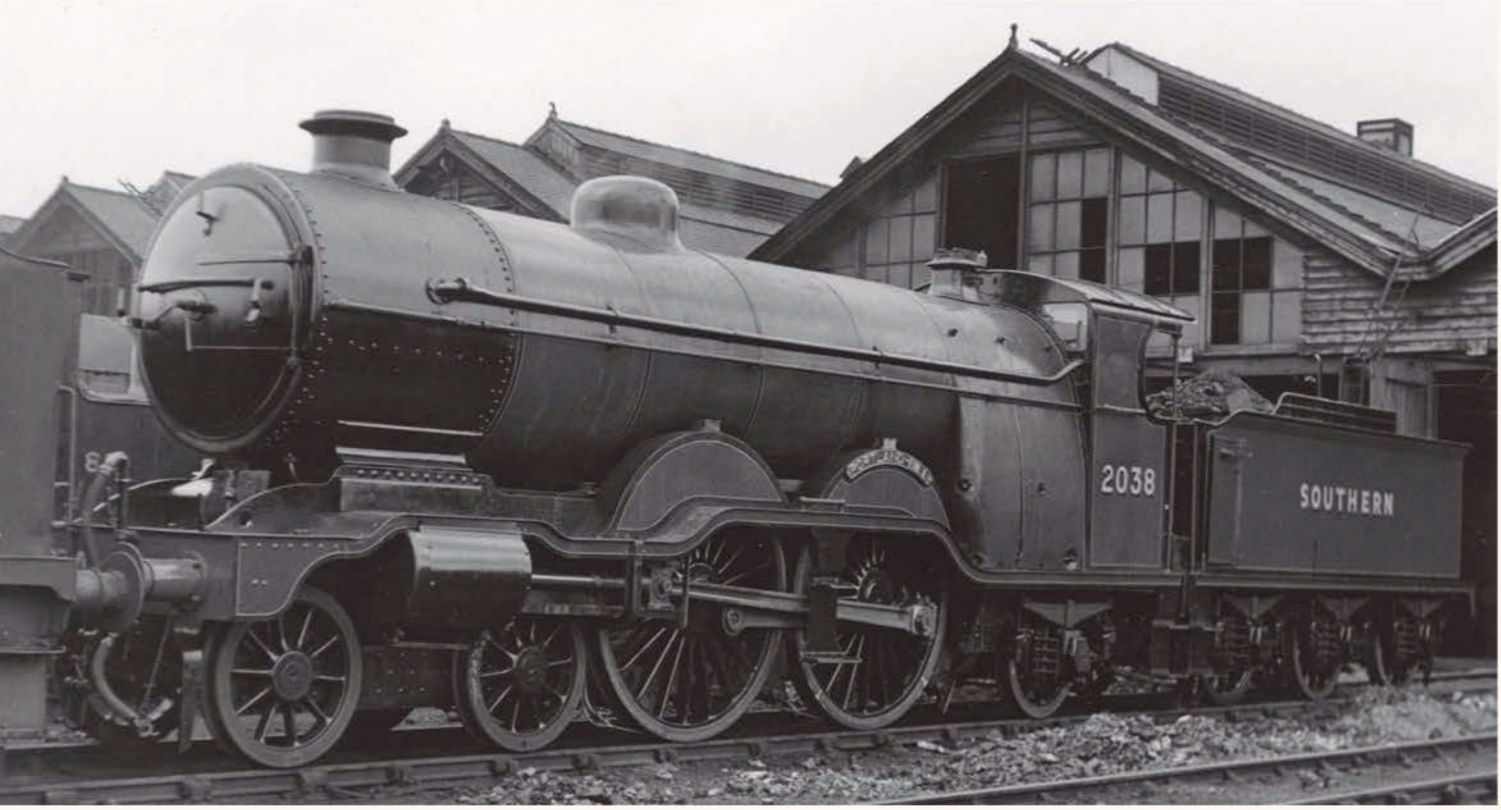


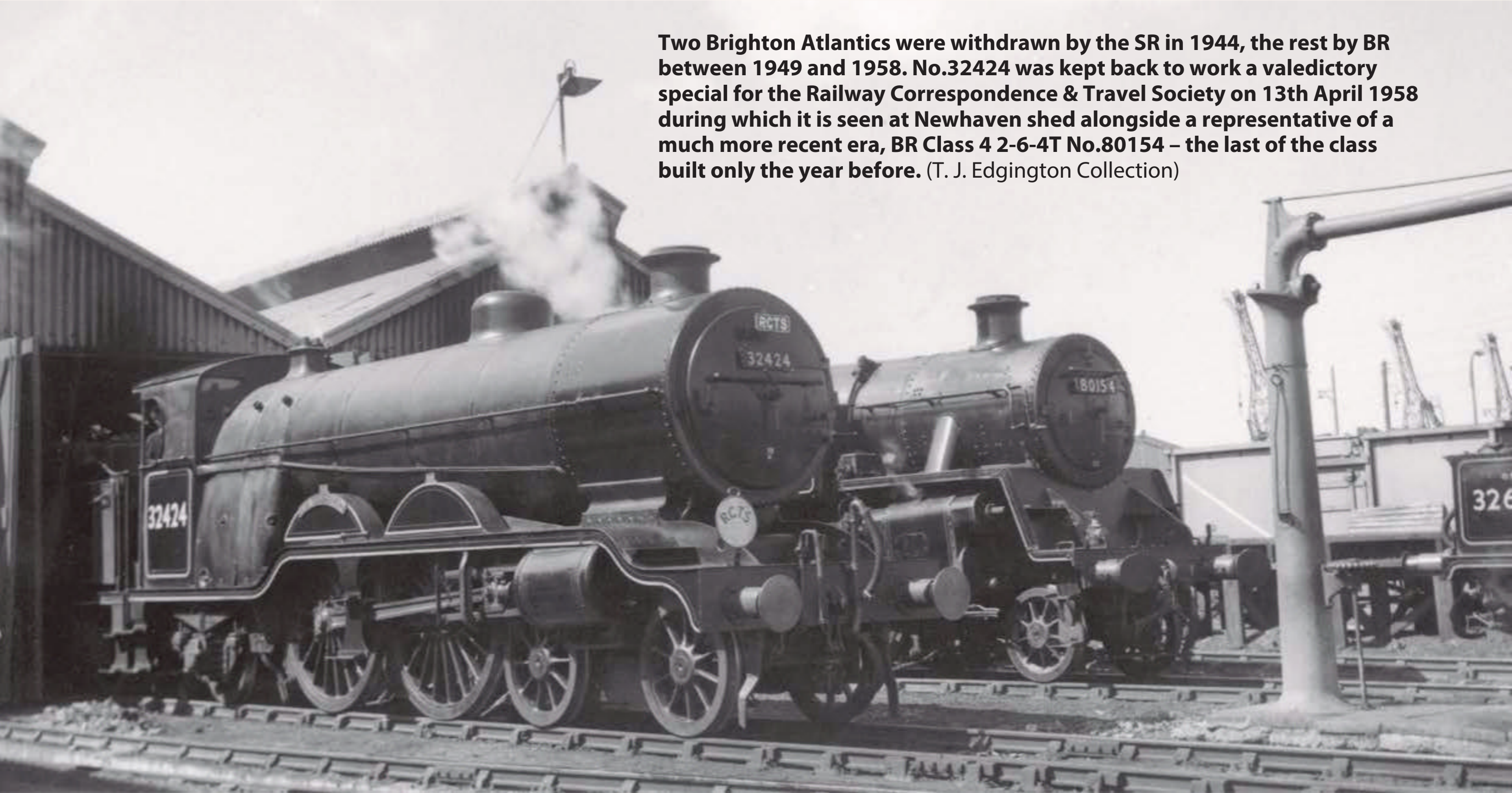


RIGHT: **Decorated for hauling a special train for the President of France in 1913 is No.39 for which occasion it was named *La France*. Marsh had not been generally in favour of locomotive naming (and the Brighton had indulged in it on a large scale!) but No.39 retained this name until 1925.** (LPC postcard)

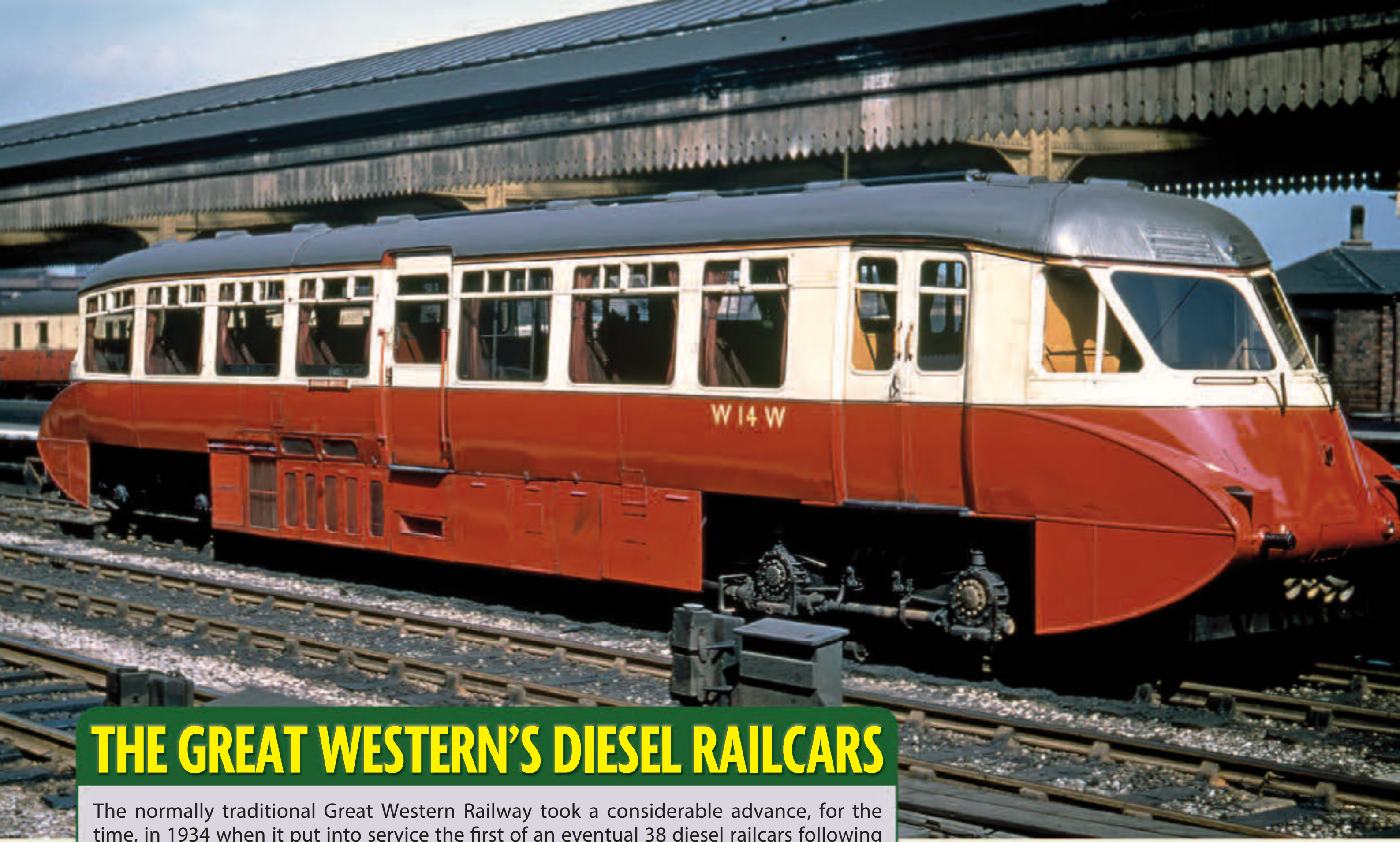


BELOW: **In 1925 the Southern Railway decided that naming the locomotives would be a good publicity exercise and nameplates bearing the names of South Coast landmarks were fitted (including to *La France*). In SR green No.2038 had become *Portland Bill*.**





Two Brighton Atlantics were withdrawn by the SR in 1944, the rest by BR between 1949 and 1958. No.32424 was kept back to work a valedictory special for the Railway Correspondence & Travel Society on 13th April 1958 during which it is seen at Newhaven shed alongside a representative of a much more recent era, BR Class 4 2-6-4T No.80154 – the last of the class built only the year before. (T. J. Edgington Collection)

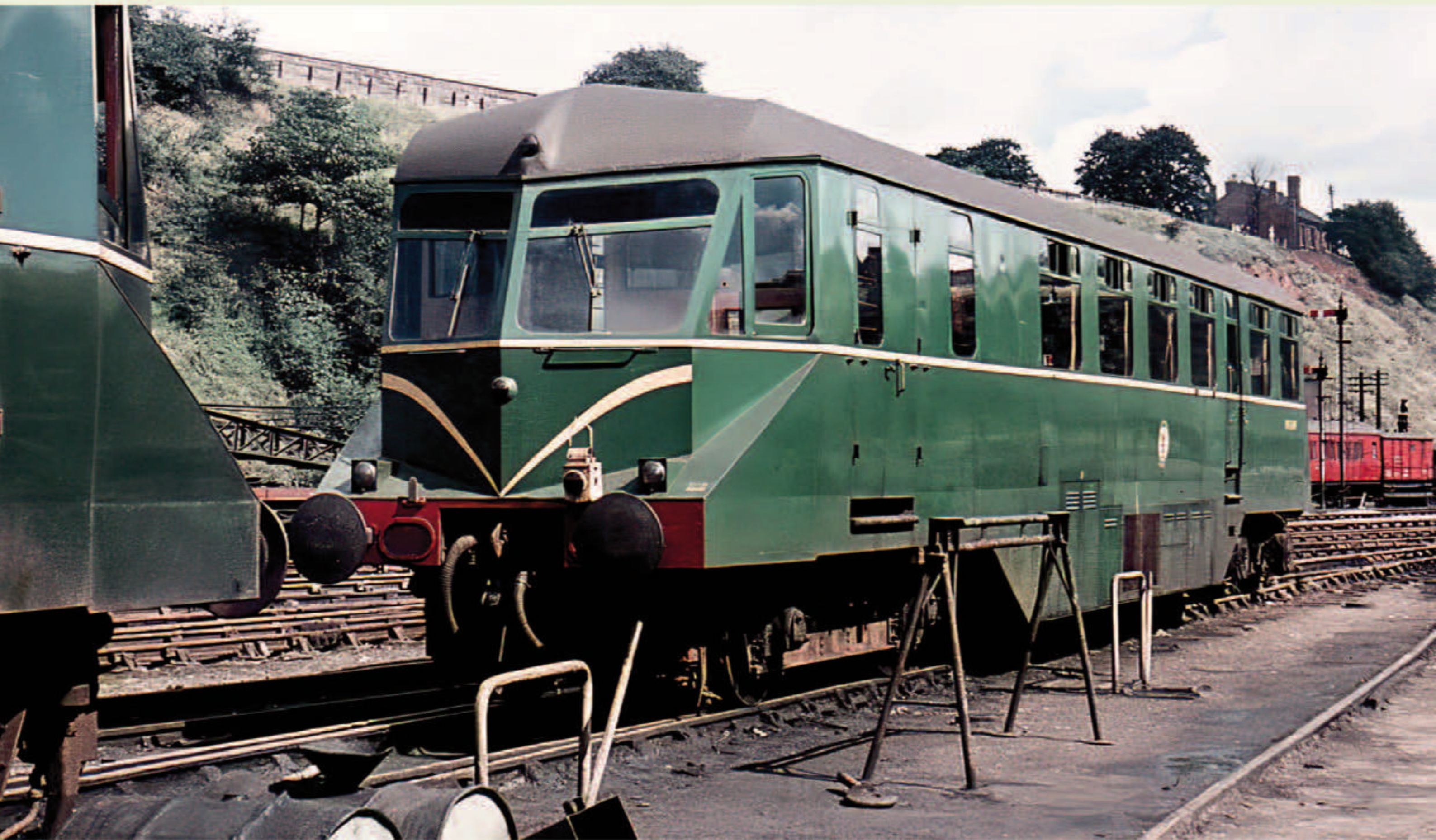


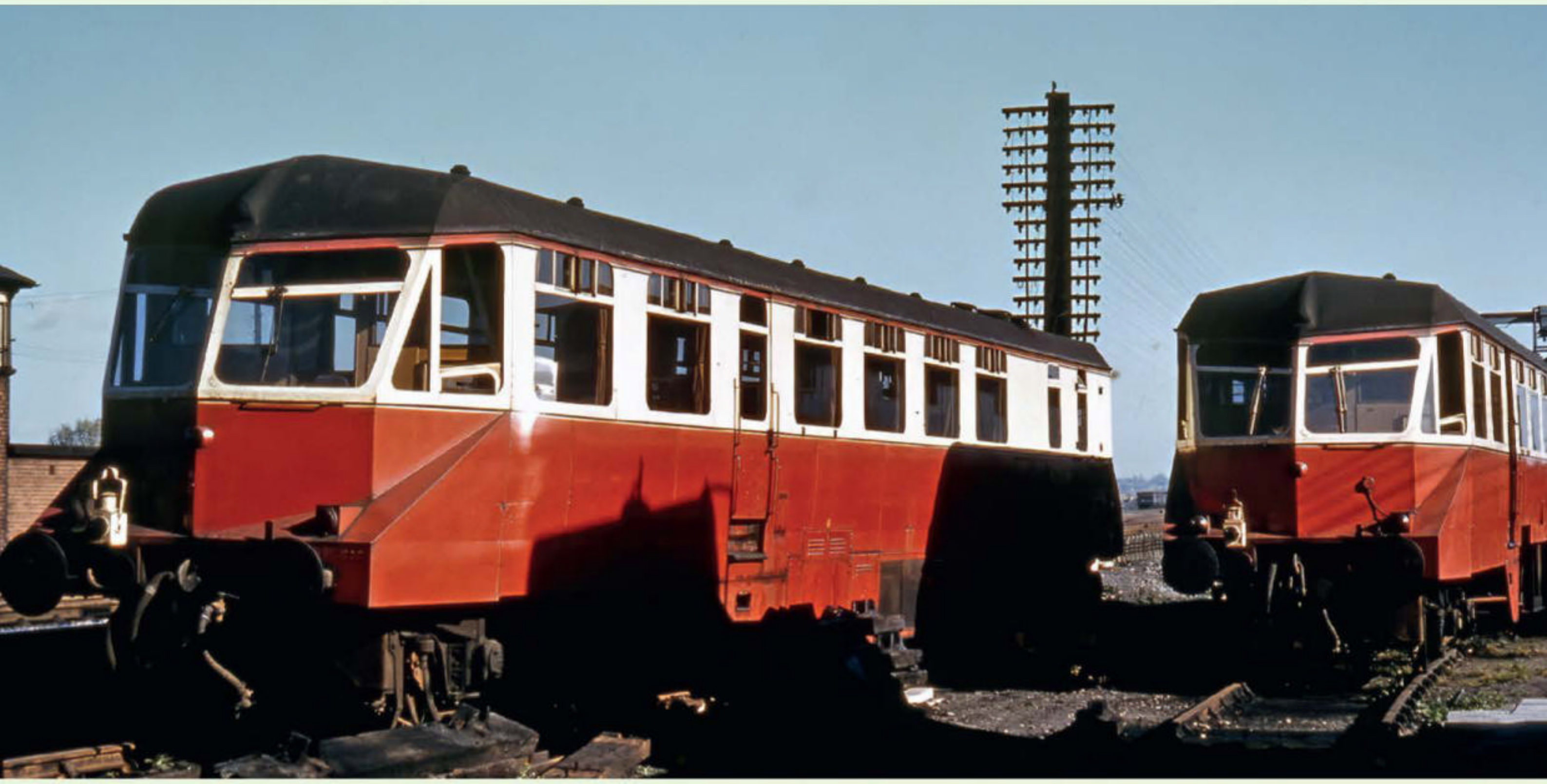
THE GREAT WESTERN'S DIESEL RAILCARS

The normally traditional Great Western Railway took a considerable advance, for the time, in 1934 when it put into service the first of an eventual 38 diesel railcars following a prototype the previous year. The first eighteen were given an attractive streamlined outline, reflecting the fashion of the time, though further wartime production in 1940/1 took on a more utilitarian appearance. The last four cars took the form of two twin-car units, while two cars were built specifically for parcels traffic in the London area. The internal layout varied in terms of seating, luggage accommodation and other facilities. The first three were designed for express services between Birmingham and Cardiff and contained a buffet counter! Others were aimed at local and branch line work.

ABOVE: **BR No.W14W, at Birmingham Snow Hill in April 1958, shows what a stylish design the streamliners were and the carmine and cream main line passenger stock livery certainly favoured them. The seating accommodation of this batch was for 70 passengers but with no toilet provision as only local services were envisaged for them.**
(T. J. Edgington/Colour-Rail.com DE483)

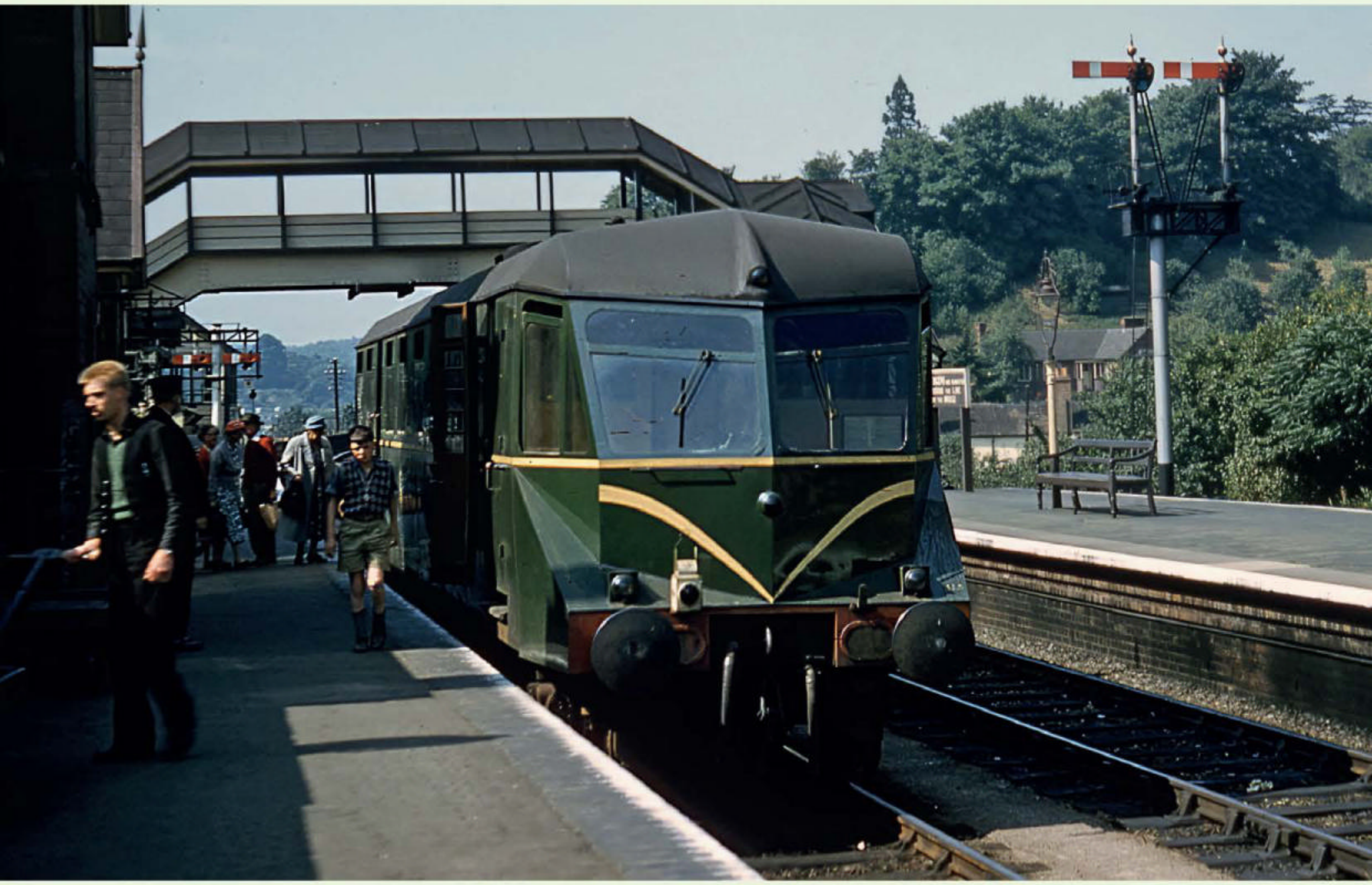
BELOW: **The railcars built in 1940/1 lost the streamlined look, for understandable reasons, and assumed a more angular appearance. Later in British Railways days the GWR railcars were turned out in the standard green livery adopted for diesel and electric multiple units, with 'speed whiskers' on the ends: practical but less appealing. This is No.W26W with an unidentified mate in the sidings at Shrewsbury in 1962, the year during which all were withdrawn.**
(Colour-Rail.com 213056)

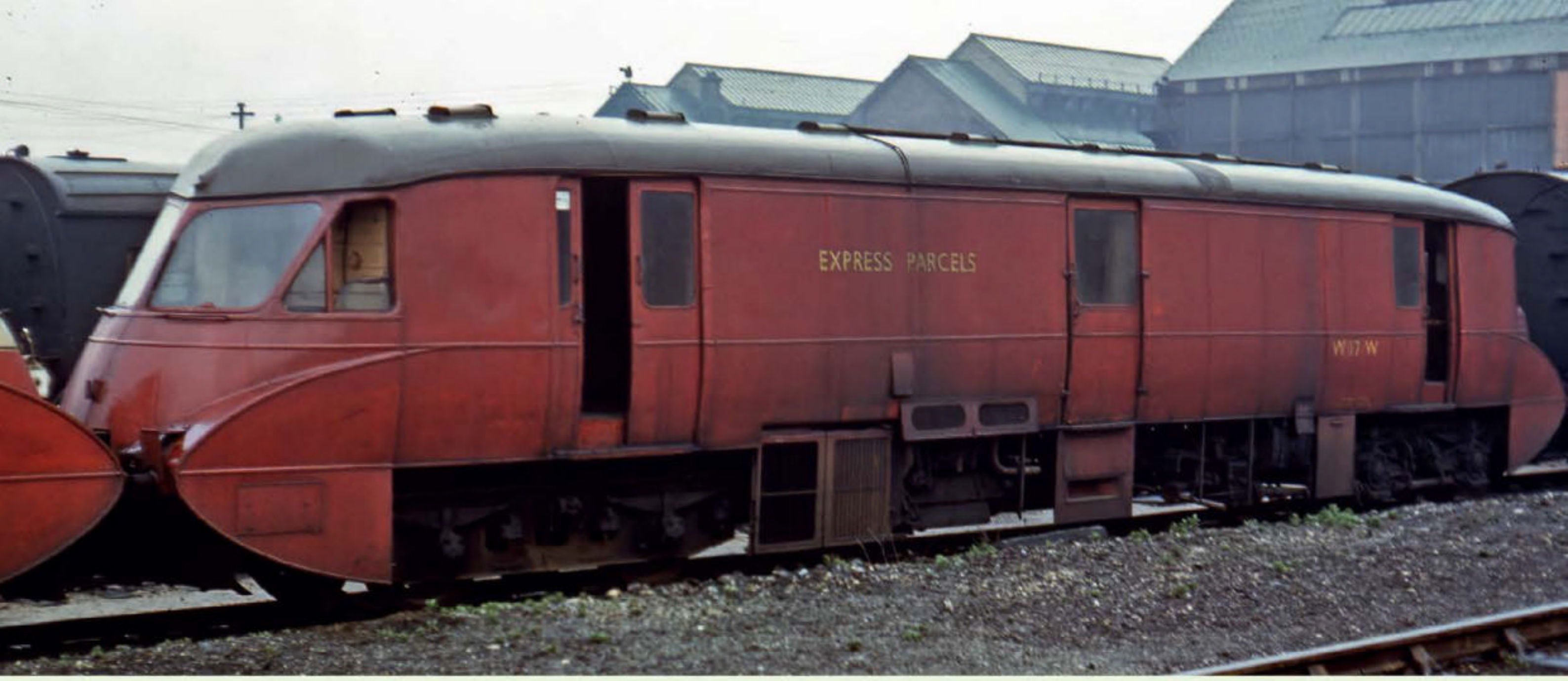




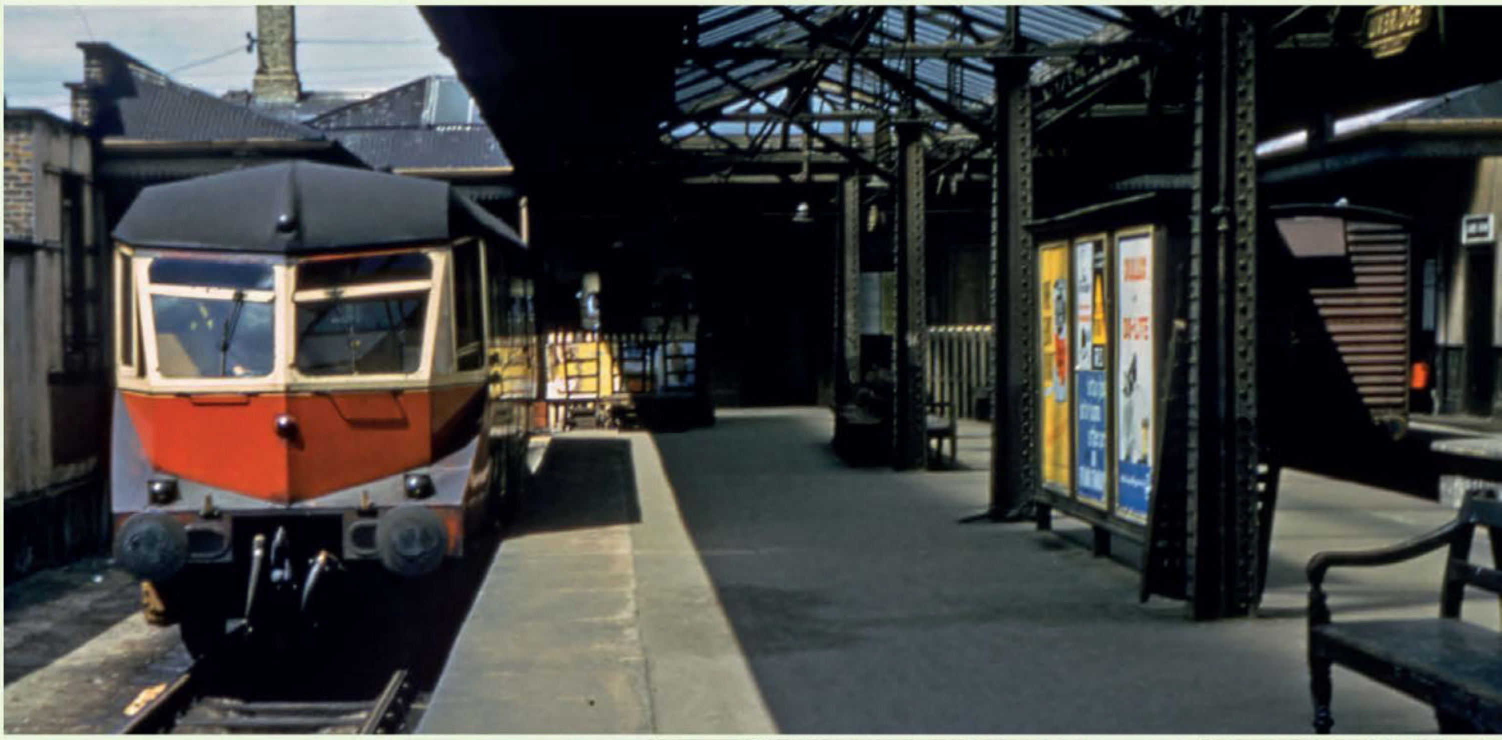
ABOVE: **Taking in the autumn sun at Southall on 25th October 1959 is No.W25W and another from the wartime build. As the railcars had been successful in bringing in extra business, a new experimental car had been built to see whether it could haul a trailing carriage. Once that had been established, later cars were built with conventional drawgear and buffers, as seen here.** (Trevor Owen/Colour-Rail.com DE2870)

BELOW: **The railcars were found to be a good solution on secondary routes and branch lines previously worked by locomotive-hauled carriages, in this respect anticipating the later employment of BR's fleet of diesel multiple units from the mid-1950s onwards. One such branch was that from Bewdley, on the Severn Valley line, to Tenbury Wells and Woofferton on the Shrewsbury–Hereford 'North & West' main line. On 29th August 1959 an unidentified car unloads its assorted passengers at Bewdley.** (Colour-Rail.com 243146)



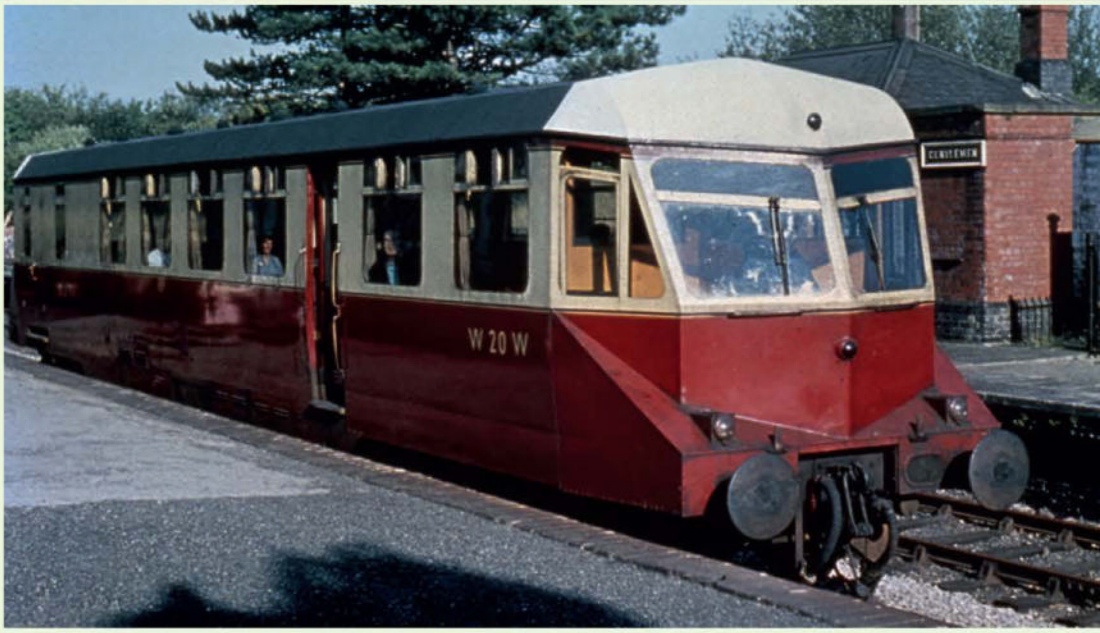


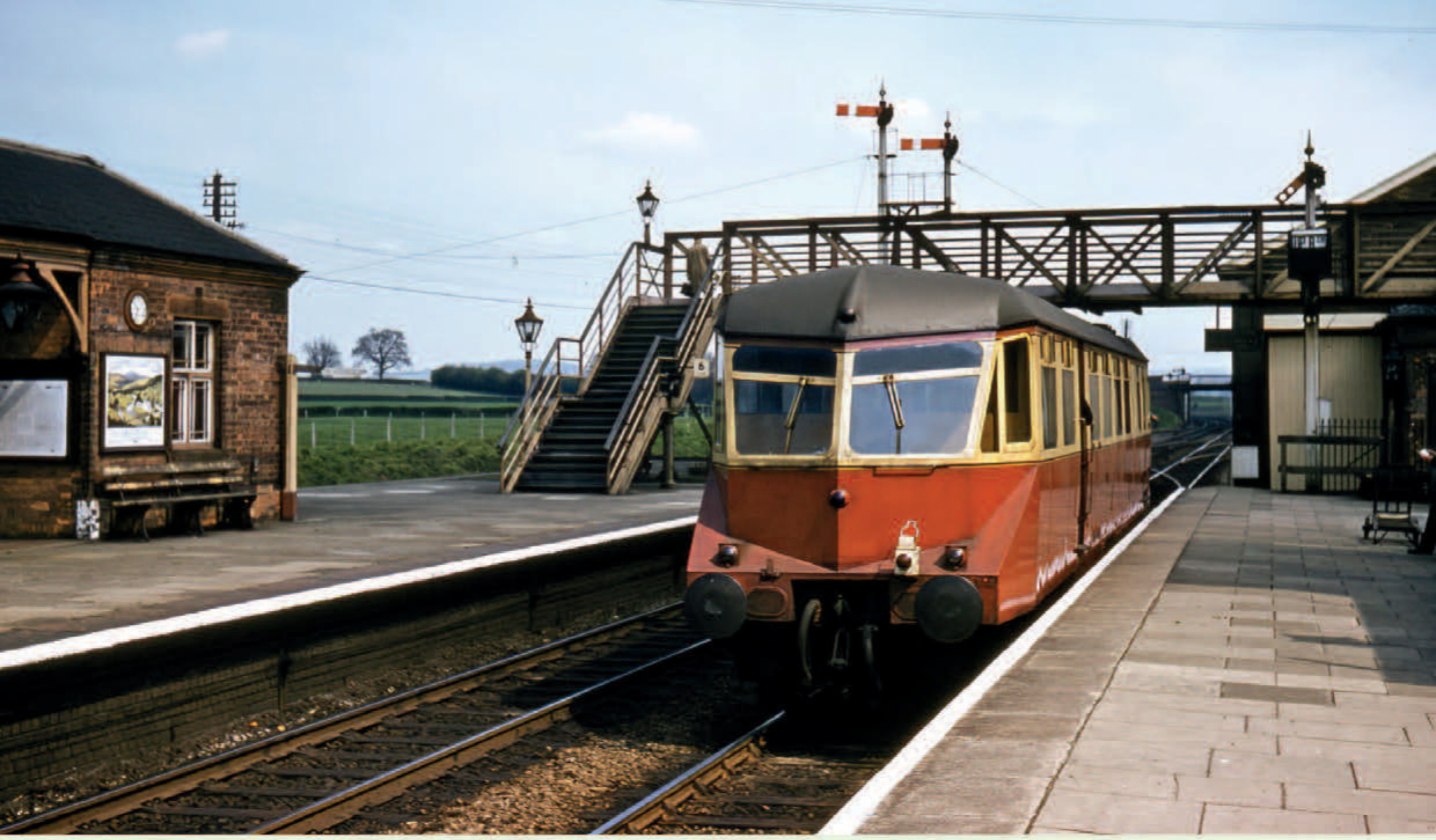
ABOVE: **No.W17W was constructed in the original streamlined order as an 'Express Parcels ' car for use in the London outer suburban area where the loading and unloading of parcels traffic into and out of local trains at stations was causing delays. It was a success and another was built in 1941. No.W17W was photographed at Old Oak Common on 3rd April 1960.** (Trevor Owen/Colour-Rail.com 284217)



ABOVE: **The 2½-mile branch from West Drayton to Uxbridge Vine Street enjoyed through trains to London at peak times but a railcar could suffice during most of the day. This is No.W21W at the Uxbridge terminus in May 1960.** (K. Bannister/Colour-Rail.com DE1750)

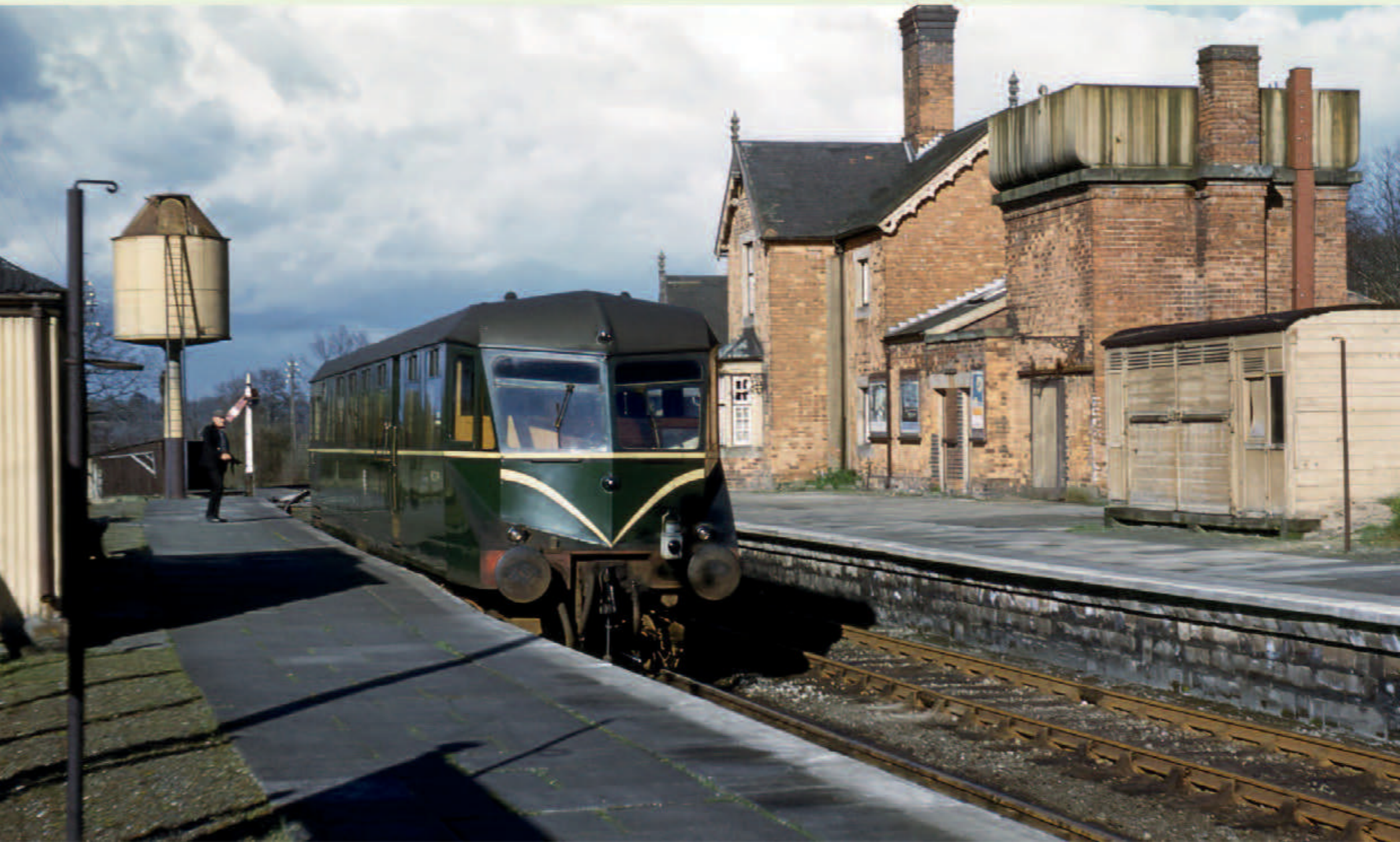
RIGHT: **From London to the Worcestershire/Herefordshire border where the Worcester–Leominster branch wandered happily until 1952 when the Bromyard–Leominster section was found to be wanting in passengers and closed. The remainder from Bromyard to Worcester pottered on until 1964. No.W20W calls at Suckley in September 1961 to see if anyone requires it.** (Michael Mensing/Colour-Rail.com DE422)





ABOVE: **Woofferton station, on the GWR/LNWR Shrewsbury–Hereford main line, has been visited by No.W20W after the run from Tenbury Wells on 30th April 1960. The GW shunting signal has been cleared for the railcar to reverse through the platform and cross over to the down platform for the return journey which the junction signal on that side will control. Note the tail lamp in place for the shunt. The Woofferton–Tenbury Wells section of the through route to Bewdley lost its battle for passengers in July 1961 and the main line station closed with it.** (R. Patterson/Colour-Rail.com 235924)

BELOW: **"No-one left and no-one came, on the bare platform..." The line from Edward Thomas's poem was famously written about Adlestrop but might equally apply to Cleobury Mortimer, on the Bewdley–Tenbury Wells branch, where No.W27W and just the signalman loiter hopefully. The station building is nevertheless an impressive one, including a water tank with a chimney for a fire to keep it from freezing. The closure of the Tenbury Wells–Woofferton section is referred to opposite; the rest to Bewdley only lasted another year. However, this was once the junction for the Cleobury Mortimer & Ditton Priors Light Railway, a lightly-constructed independent local line opened in 1908. At the grouping it was placed in the hands of the GWR which withdrew the passenger service in 1938, but later use by the Admiralty for a munitions store at Ditton Priors saw it last until 1965 when the branch to Bewdley also lost its lingering goods service.** (D. Lawrence/Colour-Rail.com DE2939)



MUSSELBU
FREE BY POST & RAIL
SUTTON'S SEEDS
NO AGENTS
DIRECT FROM SUTTON & SONS, READING.
BOVRIL

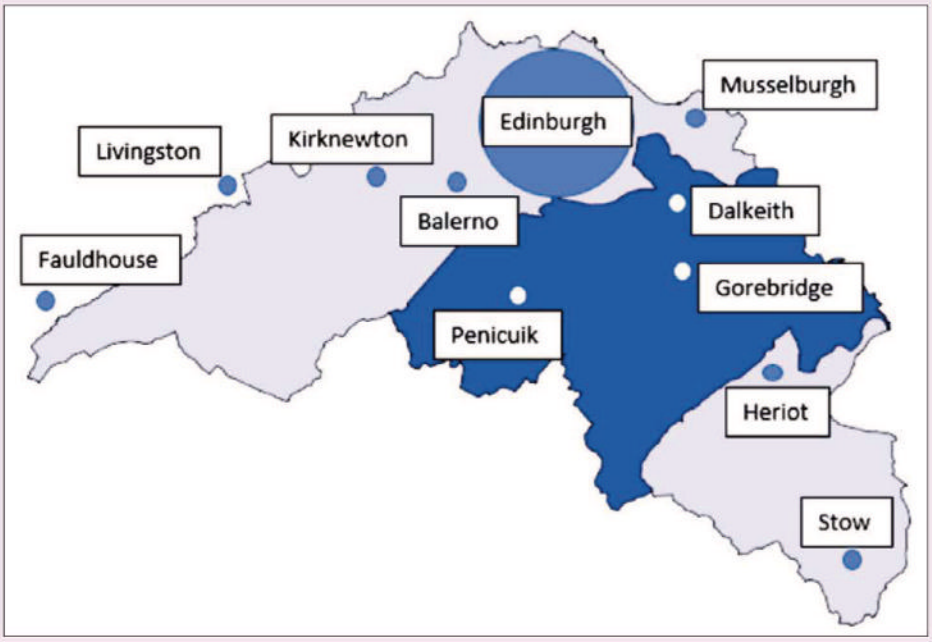
The North British Railway's station at Musselburgh, terminus of a branch from the ECML at New Hailes Junction. It closed in 1964. (John Alsop Collection)

RAILWAYS AND EDINB

BY LEONARD ROGERS

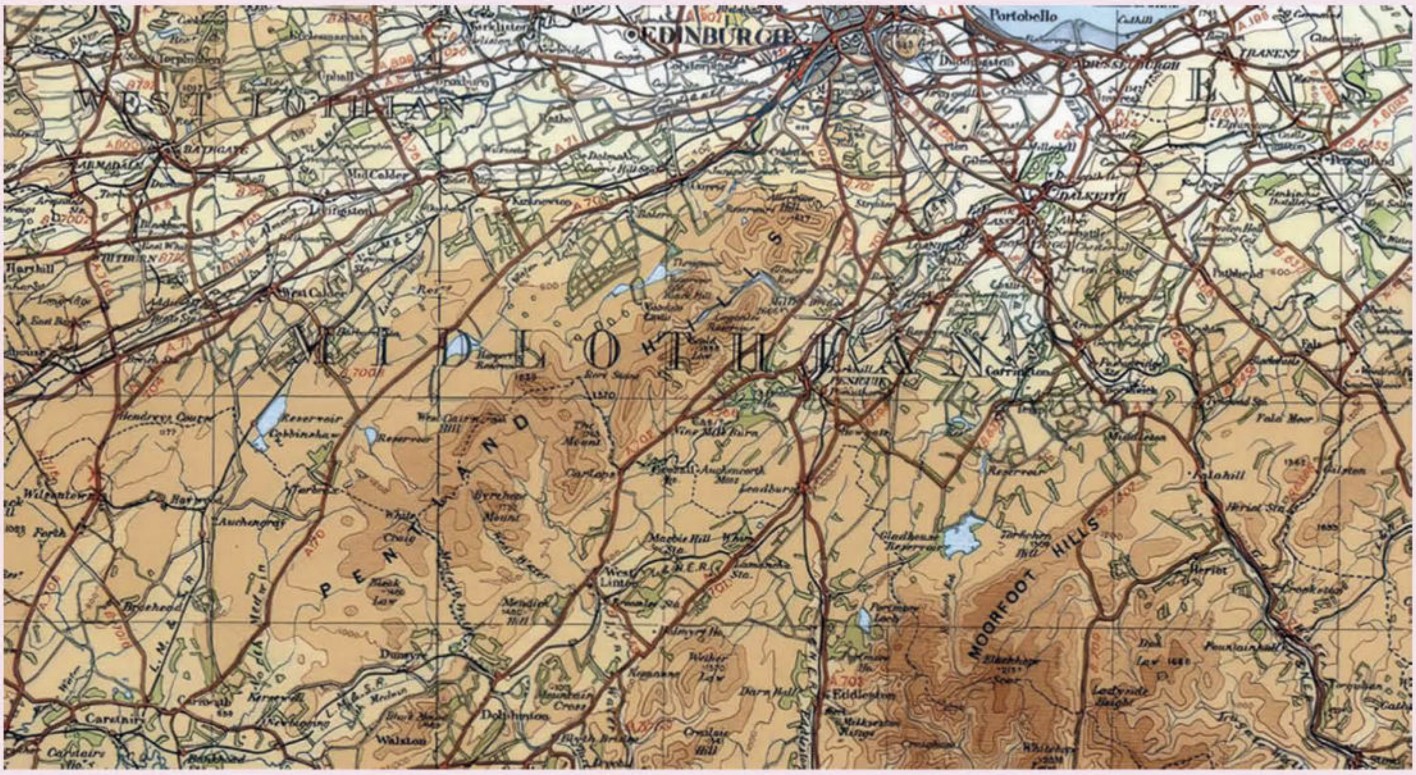
A lot of readers, upon looking at the title of this article, may well ask, "Railways and where?" So, by way of explanation initially: Edinburghshire is the official title which was used for many centuries to describe the Scottish county which included the city of Edinburgh. It was alternatively called Midlothian, a name which, according to the National Library of Scotland's map website, can be found on maps as far back as the 1640s. Eventually, the alternative came to prevail and, in 1921, the name of the county council was officially changed from Edinburghshire to Midlothian. Thus, throughout the pre-grouping era, more or less, Edinburghshire it was. That classic Ian Allan title of the 1960s, the *Pre-Grouping Atlas and Gazetteer,* for example, labels the county as Edinburghshire, with ne'er a mention of Midlothian. On the other hand, as we shall see later, Sir Walter Scott knew of 'Midlothian' and used it in the title of one of his works. Indeed, he resided in Midlothian, in the same community as your author has done for the last 40 years, for several years at the beginning of the nineteenth century.

The old Edinburghshire became somewhat of a shrinking entity over the course of 80 years, first administratively and then railway-wise too. The decline began when, in 1895, Edinburgh became a city with its own corporation. This effectively removed the city from all control by the Edinburghshire County Council, although that body still had its headquarters on the Royal Mile in Edinburgh! The next step was a fairly major expansion of the city boundaries in 1920, which incorporated Leith into Edinburgh (much to the chagrin of the good burghers of Leith!) as well as bringing four civil parishes (Cramond, Corstorphine, Colinton and Liberton) on the western and southern fringes of the city, and which had been part of Edinburghshire, under Corporation administration. This had the effect of increasing the city's administrative area from seventeen square miles to 53 square miles at a stroke.



The third change to affect what was now Midlothian took place in 1975. In that year the old county councils in Scotland were abolished. Midlothian became a district council area, under the new Lothian Region (nowadays Midlothian is a unitary authority), with considerably reduced boundaries compared with those of the old county. As may be seen from the map (below), the county boundary formerly stretched south west a good long way, to within seven or eight miles of Wishaw in Lanarkshire. From there it ran north-eastwards along the line of the River Almond to meet the city of Edinburgh at the airport, thus taking in the Caley's Shotts route from Edinburgh as far as Fauldhouse and the Carstairs line as far as Cobbinshaw, as well as the Edinburgh and Glasgow briefly around Ratho and a short stretch of the original Queensferry route as far as Kirkliston. In the east, the county included Musselburgh with its branch off the East Coast Main Line, Inveresk on the main line itself and Wallyford, as well as the branch to Smeaton from Monktonhall Junction. To the south, Midlothian stretched to a point close to Bowshank Tunnel, midway between Stow and Gala(shiels) on the Waverley Route.

The reorganisation of 1975 redrew the Midlothian boundaries so that they now ran along the Pentland Hills instead of the Almond Valley, transferring the area west of the hills to West Lothian, and along the


EDINBURGH
Portobello
WEST LOTHIAN
MIDLOTHIAN
PENTLAND
MOORFOOT HILLS
Dalkeith
Bathgate
Armadale
West Calder
Carnwath
Carstairs
West Linton
Falahill

This extract from a coloured 1938 OS 1:250 000 map shows something of the topography of the county, with its hills and river valleys but little if any flat ground. The railways followed the river valleys as much as possible but, where they were forced to cross the rivers, some impressive viaducts resulted. (Reproduced with the permission of the National Library of Scotland under the Creative Commons Attribution (CC-BY) licence)

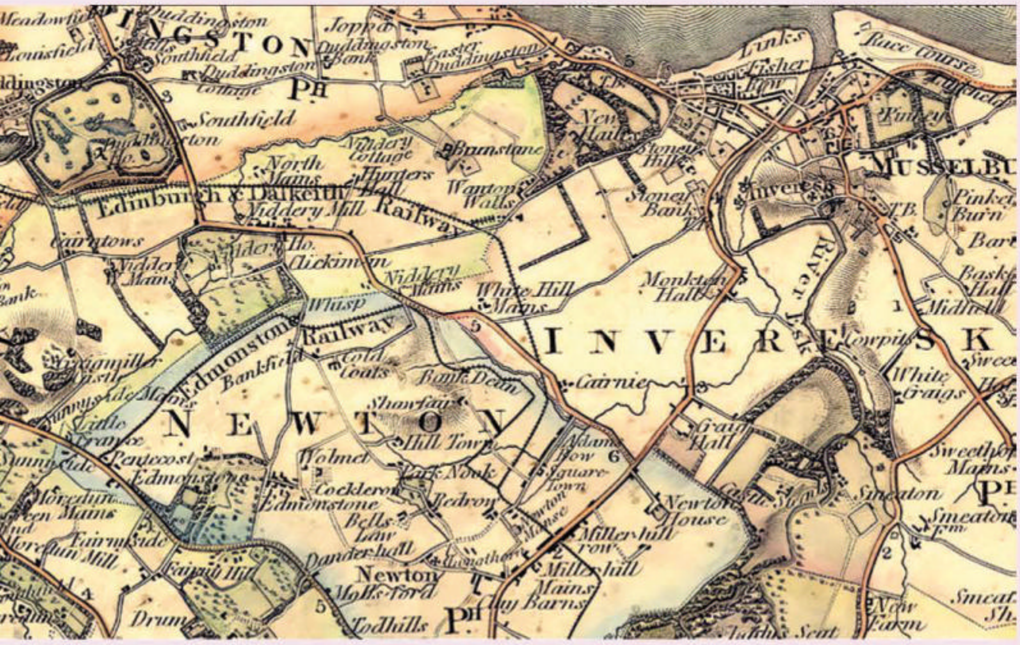
URGHSHIRE

Moorfoot Hills, so that all the country south of Falahill Summit moved into Scottish Borders. In addition, the area around Newbridge to the west of the airport was taken over by the City of Edinburgh, as were the villages of Currie and Balerno, by then just Edinburgh suburbs. Finally, the area around Musselburgh moved into East Lothian. Thus, the modern Midlothian local government area is not of anything like the same extent as the old Edinburghshire, as the accompanying diagram shows.

Railways in the area, too, declined during the 1950s and 1960s, as industry declined and as Beeching cuts were implemented, so that if someone was to have asked after 1975 "What railways are there in Midlothian?", the answer would simply have been "The Bilston branch", that remnant of the old Glencorse branch serving the colliery at Bilston Glen and, when that closed in 1991, "None, apart from Millerhill yard!". Only since 2015 has there been a working railway of any length in Midlothian once again, with the resurrection of the Borders Railway.

Much has already been published about the railways of Edinburgh and Leith, including in *Backtrack,* so we will exclude them from our consideration but, so as to be able to include more than the modern Midlothian, I have chosen to consider the historic county. The article will not attempt to give a detailed history of lines or locomotives but simply try to outline some less-publicised facts about railways and Edinburghshire.

Extract from a 'Map of the county of Edinburgh, made on the basis of the trigonometrical survey of Scotland/surveyed in the years 1827 and 1828...by...Thos. Sharp, C. Greenwood and Wm. Fowler (Engraved by John Dower)" and published in London in 1828. It shows the 'Edmonstone Railway', infant Edinburgh & Dalkeith and the Pinkie Waggonway (top right). Since the E&D was still under construction at the time of the survey and not opened until 1831, some of what's shown in Newton parish particularly may not reflect what actually resulted. (Reproduced with the permission of the National Library of Scotland under the Creative Commons Attribution (CC-BY) licence)


Duddingston
Joppa
Southfield
Brunstane
Edinburgh & Dalkeith Railway
Niddery Mill
Edmonstone Railway
Cold Coats
INVERESK
NEWTON
Inveresk
MUSSELBURGH
Monkton Hall
Millerhill
Newton House
Smeaton
Race Course
River Esk
Whitecraigs
Newton

Early railways

Although there has been no deep mining activity in the county since the closure of Monktonhall Colliery in 1997 and open cast mining to the south west of Rosewell finally ceased in 2012, Edinburghshire was, for several centuries, a centre of the Scottish coalmining industry. Edinburgh's first railway and one of Scotland's early railways also, the Edinburgh and Dalkeith (E&D), which opened in 1831, was built specifically to transport coal from Midlothian into the nation's capital. However, there were already two waggonways operating within the coalfield, one in modern-day East Lothian, but at that time in Edinburghshire, and the other in modern-day Midlothian and the City of Edinburgh.

The first of these two was the Pinkie Waggonway, a horse-worked line of some two miles or so in length. Opened in 1815, it started from Pinkiehill Colliery, as it is marked on early OS maps of Musselburgh. This was at what is now the site of Edenhall Hospital, just a couple of hundred yards or so north of

In the space of a little over half a mile around Auchendinny, the NBR's branch to Penicuik crossed the North Esk twice and traversed two short tunnels. This is the east portal of the eastern tunnel. The railway is now a cycleway.

the ECML, to the east of the site of the former Inveresk station. The line ran roughly north then north west, to where the grandstand at Musselburgh Racecourse now is, before turning west across the River Esk on a wooden bridge and past the north side of Musselburgh to reach the harbour and salt works at Fisherrow, including on-street-running along what is now New Street in Fisherrow.

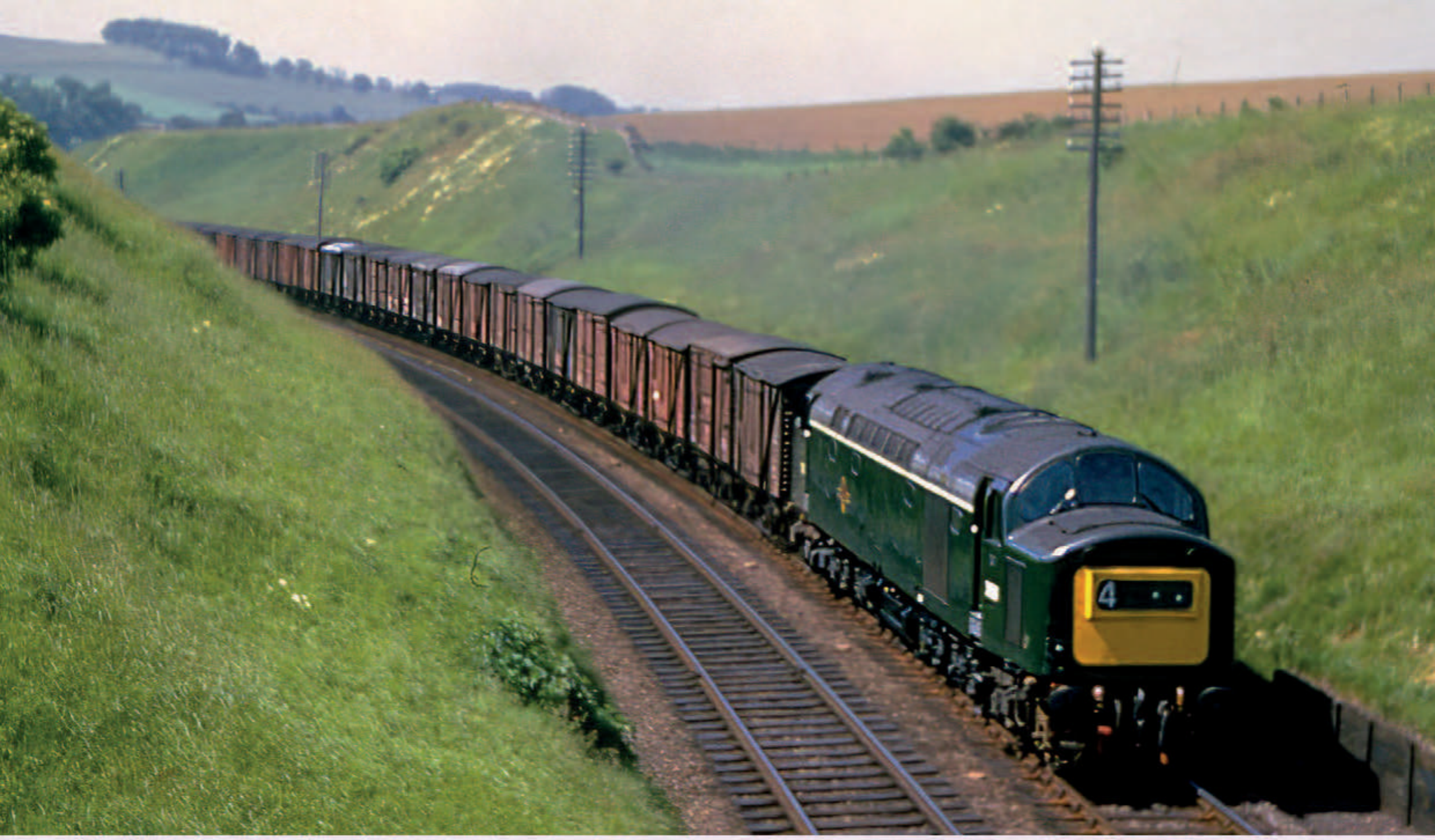
The second early waggonway in the area to note was the Edmonstone waggonway, which was a couple of years younger than that at Pinkie. Like the Edinburgh and Dalkeith Railway a decade or so later, this was an attempt to expedite the supply of coal from the Midlothian pits to the thousands of consumers in Edinburgh. This line started at Newton coal-pit, situated on the south side of the village of Millerhill, the same village which gave its name to the marshalling yard constructed astride the Edinburgh to Hawick line, to the north of the village, at the start of the 1960s. Although the Newton pit, one of several in the vicinity, was only four miles as the crow flies from Edinburgh, the local roads were very poor as well as being overcrowded with coal carts. The Edmonstone waggonway did not seek to bridge the gap between pit and city in its entirety, unlike the E&D, but finished instead at a point known as Little France, on the Edinburgh to Dalkeith turnpike, a properly surfaced road. This location is a little over two miles from the city centre and is nowadays the site of the Royal Infirmary of Edinburgh. It nestles at the foot of the hill on which Craigmillar Castle is situated. In the sixteenth century, the castle was a favoured residence of Mary, Queen of Scots, and, when she was in residence, her French retainers camped at the site where the new hospital was built at the beginning of the twenty-first century, hence the name Little France.

The Pinkie line appears to have ceased operation around the end of the 1830s, though at what date is unclear. A branch of the E&D from Niddrie, a mile-and-a-half long, had reached Fisherrow in October 1831. Whether there is any connection between the two events is not known.

The subsequent history of the Edmonstone line is definitely linked to that of the E&D. When the 'main line' of that company was constructed at the beginning of the 1830s, it incorporated the southern section of the waggonway, suitably upgraded (since the Edmonstone line used edge rails originally). This was the stretch northwards from Newton pit, past Millerhill, running north west then turning north east, as far as the habitation marked as Cairnie on maps. This resulted in there being a curious dog-leg in the E&D route in its early days, involving two almost right angle turns in the vicinity of Millerhill. When the railway was being extended towards Hawick in the 1840s, this anomaly was straightened out and the dog-leg was bypassed. A part of the northern section of the waggonway, from pits adjacent to the junction of what's now the A6106 and the unclassified road from Danderhall towards Niddrie, south westwards to a landsale depot at Little France, appears to have remained in use for a good number of years after the E&D took over south of Cairnie. A 'tramway' is shown on the OS 'six-inch' map as late as 1893, although it has gone by the time of the 1906 revision.

In an interesting case of 'what goes around comes around', the course of the abandoned Edmonstone waggonway south-westwards from Cairnie was obliterated in the 1960s by the dumping of colliery waste from the new deep mine at Monktonhall. Some while after the closure of the colliery, the 'new' alignment for the Borders Railway was driven through this area in 2013/14. Between Newcraighall and King's Gate Junction, north of Eskbank, the Borders line does not follow the course of the Waverley Route as it does further south. In order to create this new alignment, a cutting was made through the Monktonhall 'bing' then the line of route was pushed south-south westwards towards the site of Shawfair station and the west end of Millerhill village.

Tynehead station, c1915. It closed with the Waverley Route in January 1969.
(John Alsop Collection)



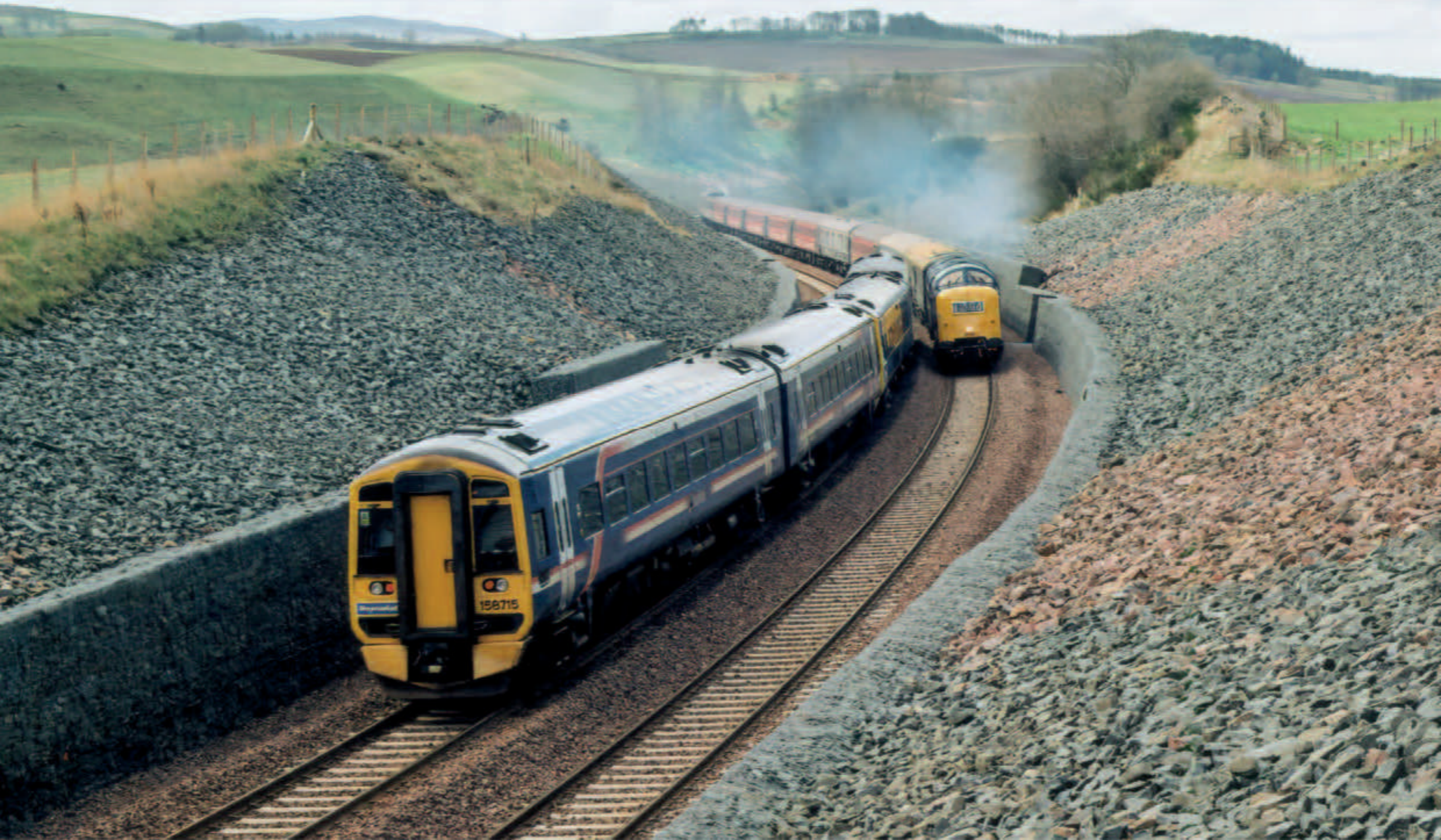
English Electric Type 4 No.D260 leads a Carlisle–Millerhill fitted freight on Borthwick bank in June 1965.
(K. M. Falconer/Colour-Rail.com DE1840)

In doing this, the Borders Railway has revived quite closely the course of the waggonway in this area.

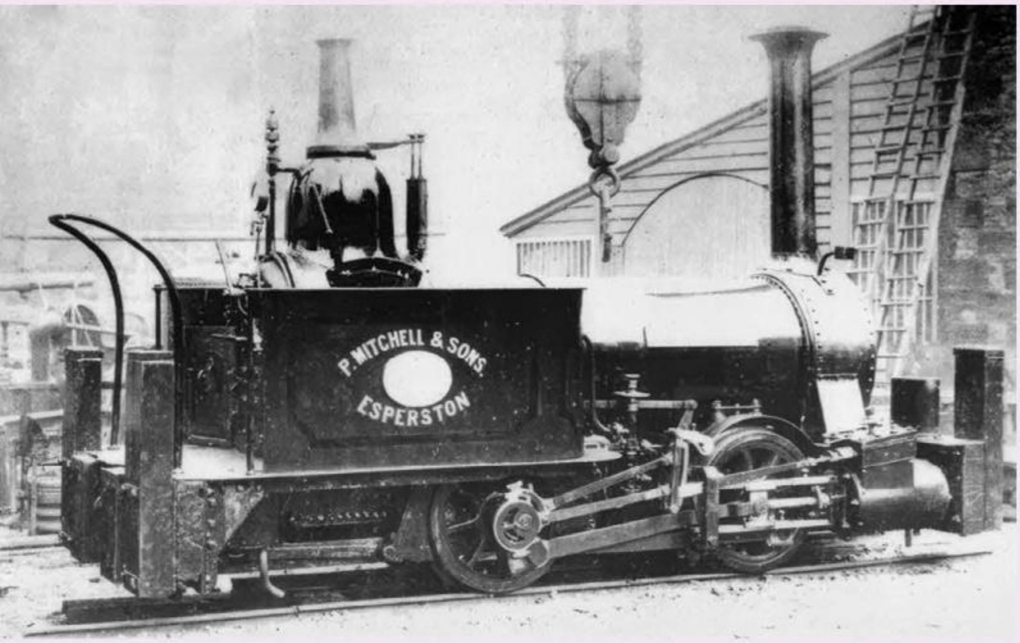
Dalkeith (Hardengreen Junction) to Smeaton

Although this line is shown in the *Pre-Grouping Atlas and Gazetteer,* it was fairly short-lived, never carried a passenger service, has had little written about it and appears to have been rarely if ever photographed while it was operational.

The main line of the Edinburgh & Dalkeith Railway, despite the company's title, did not run to the centre of Dalkeith. The town of Dalkeith sits on a ridge between the North Esk and South Esk rivers. Their confluence is to the north east of the town. When it opened in October 1831, the main line of the E&D crossed the North Esk then ran south, through Eskbank, to the west of Dalkeith, and terminated at a station known as Dalhousie, close to the north bank of the South Esk. Thence it was quickly extended by a one-and-a-half-mile private line, across the river,



Seen from the minor road from Gorebridge and close to the village of Borthwick, the 12.31 Tweedbank–Edinburgh service on 9th April 2016, formed of a pair of Class 158 units, descends the bank. It is passing 'Deltic' *Alycidon* climbing the bank with a railtour from Derby to Tweedbank. Beneath the bridge from which the photograph was taken, the gradient steepens from 1 in 72 to 1 in 63 for a short distance.



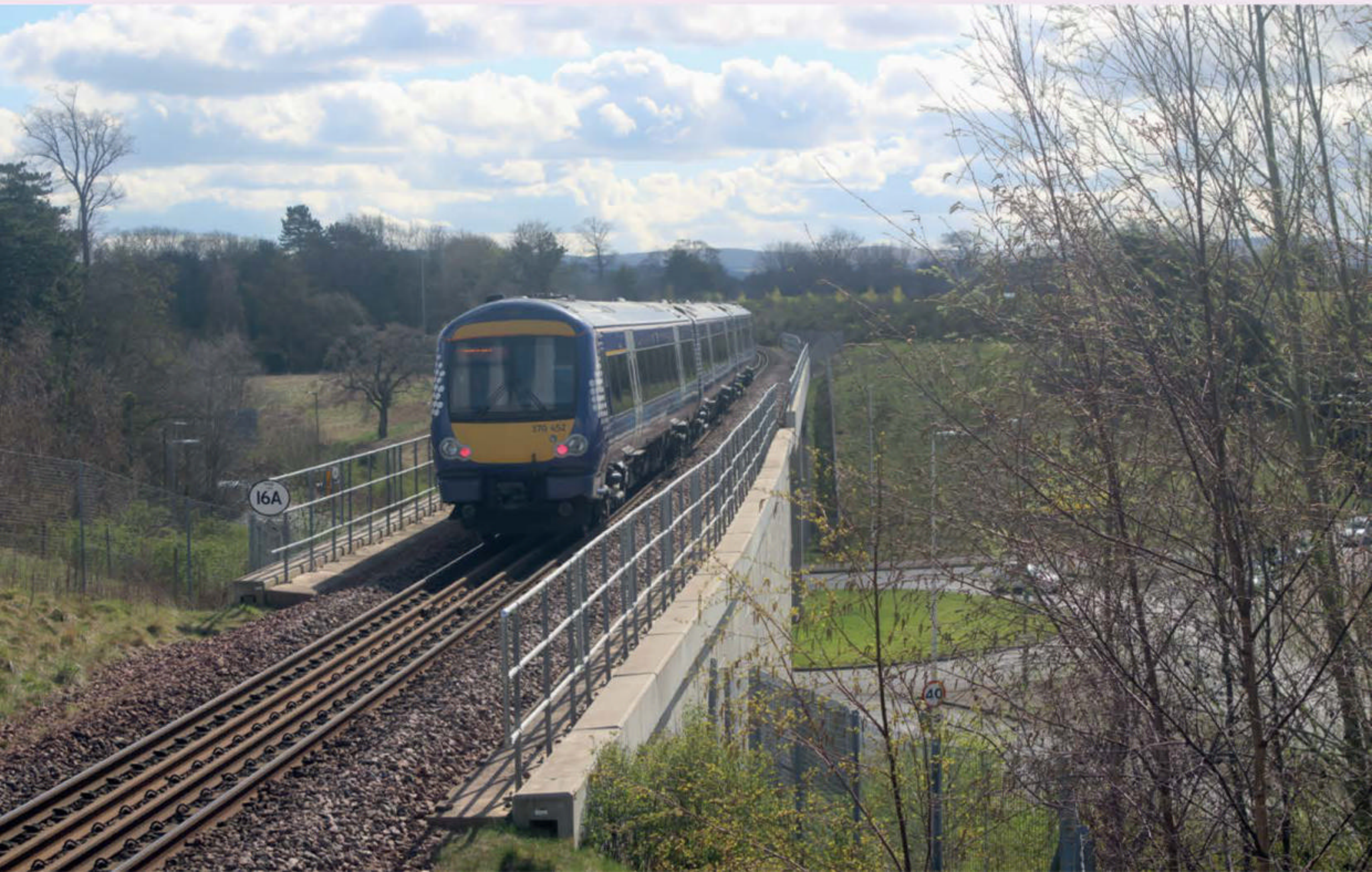
Taken from an undated photograph, this picture shows the first locomotive to operate on the narrow (2ft 8in) gauge line within the quarry at Esperston. Named *Mountaineer,* it was built by Hawthorn's of Leith in 1862 and scrapped in 1906.

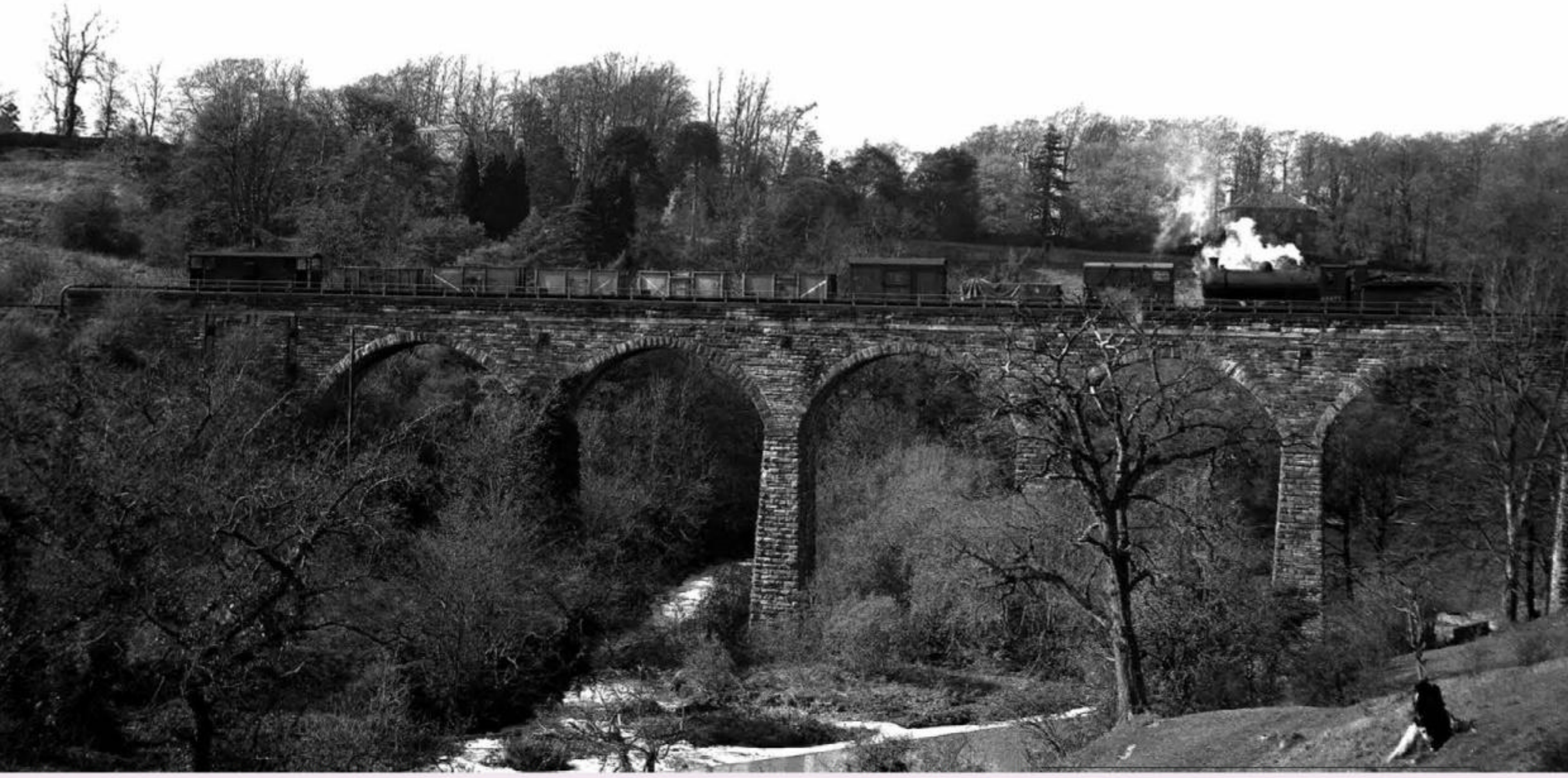
financed by the Marquis of Lothian, to reach his pits at Arniston. Because of the high cost to the Marquis of the South Esk viaduct, he was allowed to convey his coal over the E&D's North Esk bridge free. When the line was being extended towards Hawick by what was now the North British Railway, the Marquis's line was incorporated into the extension, with the viaduct widened to take double track and the timber superstructure and cast iron arches of his viaduct replaced by ones in brick and stone.

The centre of Dalkeith was eventually connected to the E&D by the opening of a half-mile branch from Glenesk Junction, close to the southern end of the bridge over the North Esk, in autumn 1838. This branch, too, soon gained a fairly lengthy, private extension. In this case the proprietor was the Duke of Buccleuch, the objective being to connect his pits at Smeaton and Cowden, to the north east and east of the town, to the railway at Dalkeith. OS maps of the 1850s depict this line leaving the Dalkeith station site about halfway along its length and crossing the Eskbank road outside, before cutting across the streets of Dalkeith on the level, to reach the South Esk at the north east corner of the town. Where the Duke's line crossed the South Esk, there was erected another quite substantial viaduct. It was known as the Victoria bridge.

An 1862 Act of Parliament authorised the North British Railway to construct a line that climbed southwards from the ECML at what became Monktonhall Junction. At Smeaton the line split, one branch forking sharp left and then heading eastwards for Macmerry and the other heading south south west towards Hardengreen Junction, the point at which the Peebles loop left the Waverley Route, to the south of Eskbank. Construction was slow, the rails eventually reaching Hardengreen in July 1870. Immediately south of the new junction at Smeaton, the Hardengreen line involved new construction for a short distance until the old Smeaton Colliery was reached, the colliery being somewhat nearer to Dalkeith than the junction. From the colliery onwards, much of the Hardengreen line was an adaptation of the Duke of Buccleuch's tramway, with the new line varying from the previous alignment slightly in a number of spots. What it *did* do, though, was to use the duke's Victoria viaduct across the South Esk. Shortly after leaving the Dalkeith end of the viaduct, proceeding

Shortly after leaving the modern Eskbank station, the 13.25 Edinburgh–Tweedbank on 9th April 2021 is seen crossing the Hardengreen viaduct. This structure was created in 2014 to carry the Borders Railway across the roundabout on the A7 seen below the train. In the days of the Waverley Route there was simply a stretch of embankment at this point. The building, in 1990, of the Eskbank bypass road (seen on the right of the photograph) involved the bulldozing of the embankment and the creation of the roundabout in the space so created.





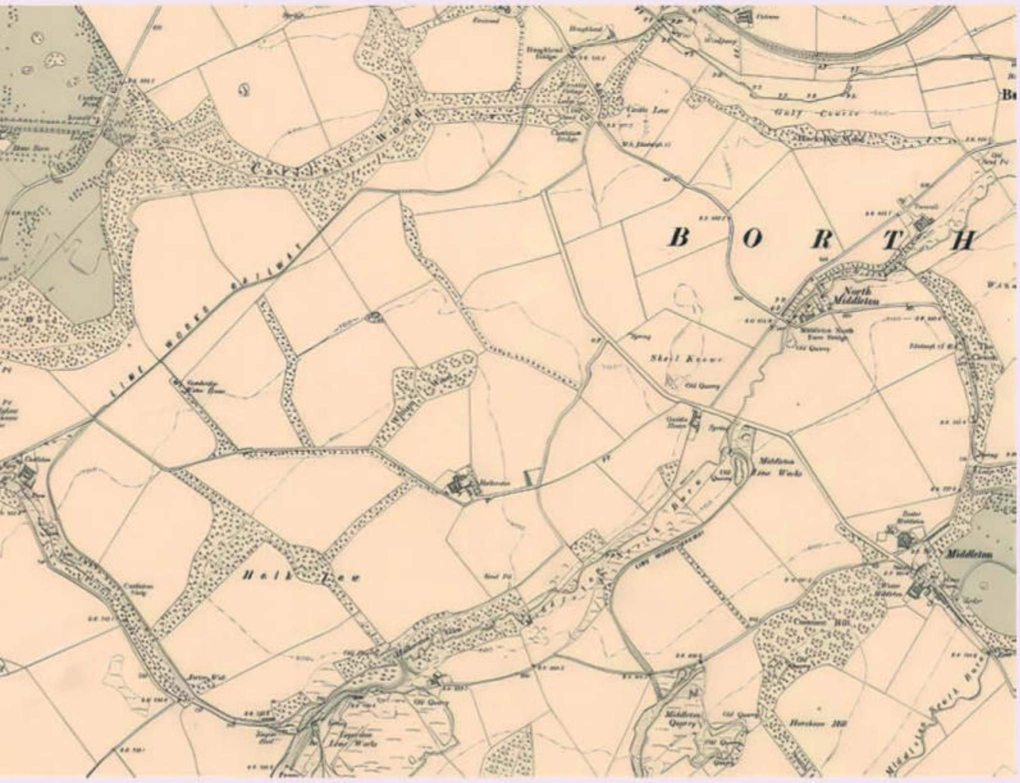
NBR J35 0-6-0 No.64479 crosses the viaduct across the North Esk at Lasswade, returning to Hardengreen from Polton with the branch freight on 20th April 1960. (Stuart Sellar)

in a southerly direction, all-new construction commenced. The old alignment across the streets of the town, to reach Dalkeith railway station, was abandoned and instead a course, in cutting mainly, was pursued through the southern parts of Dalkeith and Eskbank.

Early thoughts of a passenger service from Edinburgh to Hawick and to the North Esk valley via Monktonhall and Hardengreen, with a new passenger station in Dalkeith, never came to fruition and the line settled down to a short, mainly under-used, existence as a freight-only route. After only 43 years, through goods workings from Smeaton to Hardengreen ceased in 1913, although various industrial sites continued to be served from either end. Apart from stubs at either end, the line was taken out of use entirely in 1934. The stub at the Hardengreen end, which stretched as far as Newbattle Road in Eskbank, served as a headshunt for the small marshalling yard there until its closure (superseded by the new yard at Millerhill) in the early 1960s.

At the Smeaton end, track was relaid to serve a new central coal preparation plant that was opened alongside the former line, adjacent to what was known as Dalkeith Colliery (although it was much closer to Smeaton), in 1953. The plant was usually known as Dalkeith washery. The final closure of the Macmerry route from the junction at Smeaton in 1965 meant that the route from Monktonhall Junction remained open thereafter simply to serve Dalkeith Colliery and the washery. Dalkeith Colliery closed in 1978 and the washery in 1980 and, after that, the line to Monktonhall Junction was lifted. Nowadays, from Whitecraig, midway between Monktonhall Junction and Smeaton, to the outskirts of Dalkeith at Thornybank is a footpath and cycleway.

Extract from a 1905 OS 'six-inch' map showing the course of the 'Lime Works Railway' from the Waverley Route at Fushiebridge (top, right of centre) to Esperston (bottom, left of centre). (Reproduced with the permission of the National Library of Scotland under the Creative Commons Attribution (CC-BY) licence)



Bridges and viaducts

Edinburghshire was and is a county of hills and river valleys – see the accompanying, coloured Ordnance Survey map. There is very little flat country within its bounds apart from on the coastal plain in northern Edinburgh and Leith and around Musselburgh. Four rivers, the Almond, the Water of Leith and the North and South Esks, run, from the south west and south, in a generally north eastwards direction, to meet the Forth at Cramond, Leith and Musselburgh respectively.

While the builders of railways in Edinburghshire managed, on the whole, to stick to the valleys, using them to reach their destinations or to gain height before climbing over the hills southwards and south westwards, they could not avoid crossing the rivers in numbers of places. These crossings resulted in the construction of some quite impressive bridges and viaducts. Some of these are shown in the accompanying illustrations.

The Victoria viaduct at Dalkeith, spanning the South Esk, has already been referred to, as has the Newbattle viaduct (or Lothianbridge) at Dalhousie on what became the Hawick line, also spanning the South Esk. This latter bridge was 337 yards long. Its stone replacement, nowadays part of the Borders Railway, has 22 arches. Another lengthy viaduct is that at Newbridge across the Almond on the

Edinburgh & Glasgow Railway main line. This one spans the former county boundary between Edinburghshire and West Lothian (or Linlithgowshire as it was formerly known) and has 36 arches.

Smaller viaducts spanned the North Esk on both the Polton and Penicuik branches and, while they have both been disused for over 50 years, they are still standing. That on the Penicuik line forms part of a cycle path which runs all the way from Hardengreen Junction to Penicuik.

Finally, still also standing is the impressive structure known as Bilston Glen viaduct. While not as long as those viaducts at Newbattle or Newbridge, it excels in height, with the bridge deck standing 150ft above the Bilston Burn (a tributary of the North Esk) beneath. The current massive metallic structure was erected in 1892 as a replacement for the original of 1874 which had been constructed by the Edinburgh, Loanhead & Roslin Railway, a protégé of the NBR. When the original started to suffer from subsidence because of coalmining activity in the vicinity, the NBR decided to replace it rather than attempt repairs. This was because the EL&RR's engineer had been one Thomas Bouch and, after 1879, the NBR board was very wary of any construction which had that gentleman's name attached to it.

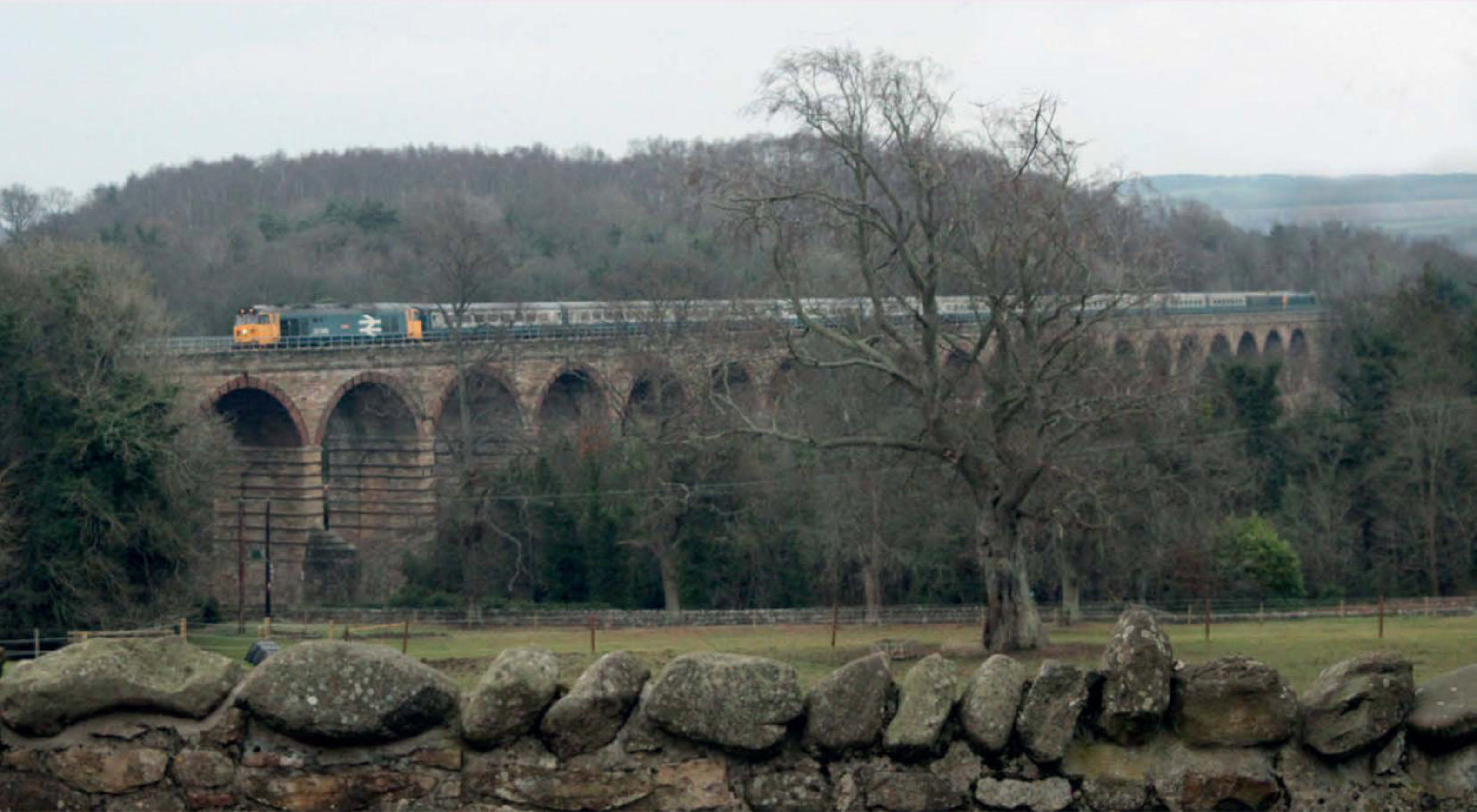
After the line over Bilston Glen viaduct closed, following the closure of Roslin Colliery in 1969, the viaduct itself was fenced off and left. Trains serving Bilston Glen Colliery still came right up to the north end of the viaduct almost. The colliery closed in 1989 and, after destocking of the site, the branch from Millerhill closed in 1991. However, in 1999, a consortium led by Midlothian Council financed refurbishment of the viaduct and it reopened as part of a cycle path that now extends from close to the west end of Millerhill village as far as Roslin.

Industrials and a light railway

Although known more as an administrative and financial centre, both now and in the past, the city of Edinburgh did have industries to its name as well and some of those industries had private ('industrial') railways. What about the shire, though? Well, there were certainly sidings and spurs associated with the coalfield and various collieries had 'industrial' locomotives, both steam and, latterly, diesel, in their employ. Some of these, such as the steam locomotives, including some unusual 0-4-2STs, at Lady Victoria Colliery at Newtongrange (now the Scottish National Mining Museum), were quite widely photographed.

While industrial lines are often associated with urban settings, one Edinburghshire industrial line was quite rural, rather like some of those in the ironstone mining areas of the English Midlands. The railway in question was the Esperston Limeworks railway. This comprised a narrow (2ft 8in) gauge line within the limestone quarry at Esperston and a standard gauge line, some three miles long, running across the fields, to convey the output of the limeworks and, in all probability, to bring in coal for firing the lime kilns at the quarry. (Lime for agricultural and commercial use is made by roasting limestone.) The line was roughly 'L'-shaped, running north west and then north east across the Midlothian countryside and generally in a downhill direction, from Esperston, to join the Waverley Route at Fushiebridge, south of Gorebridge. There was a climb of around 250ft from Fushiebridge to Esperston. Although the line closed in 1942, its course may still be traced across the countryside in a number of places, almost 80 years later. One remnant in particular is an embankment on a gradient of roughly 4% near the farm at Castleton (OS National Grid ref. NT322583).

Main line electrification came to the county in 1990 when the catenary was strung up on the Carstairs to Edinburgh route as well as on the ECML and through Millerhill yard. However, there had been overhead electrification in place since nearly a century before that, both in the city, where Bruce Peebles and Co. at Granton operated a single electric locomotive from tramway-style overhead wire between 1903 and 1961, and also in the shire. In Edinburghshire, the Kinleith paper mills at Currie, in the valley of the Water of Leith, also had a single locomotive. Built in 1895 in Wolverhampton, it used double overhead wires, trolleybus-style, and was scrapped in the early 1960s. The paper mills were connected to the Caley's Balerno branch. In the environment of a paper mill, an electric locomotive provided an alternative to the employment of either a fireless locomotive or



This view of the 22-arch viaduct across the South Esk at Newbattle, constructed by the NBR as part of extending the original Edinburgh & Dalkeith Railway to Hawick in the 1840s, is from the north west, with Newtongrange situated at its far end. It was taken on 5th January 2019, on the weekend of the 50th anniversary of the closure of the Waverley Route. Nos.50 049 and 50 007 are topping-and-tailing a railtour returning from Tweedbank. The tour originated in Birmingham and, on reaching Carlisle on the outward journey, participants were offered the option of detraining there and taking a trip by road, paralleling as closely as possible the 'missing' bit of the Waverley Route, before rejoining the train at Tweedbank. Interestingly, this visit of Class 50s to the Waverley Route was not unique. Although most of the class were in service for only a few months while it was still open and rarely strayed from the WCML, there were at least three reported occasions on which almost brand-new members of the class were used over the Waverley Route in the early summer of 1968. These were on diversions of Euston–Glasgow trains off the WCML occasioned by a work-to-rule in late June/ early July. (Information courtesy of 'Class 50 (Life and Times Series)', Colin J. Marsden, Haynes Publishing Group [OPC], 1991)

On 24th March 2021 unit No.170 426, working the 14.25 Edinburgh–Tweedbank service, approaches King's Gate Junction, the southern limit of the double track section from Newcraighall South Junction and the meeting point of the 'new' alignment of the Borders Railway in this area and the original Waverley Route. The train is about to pass under the A720 Edinburgh City Bypass, just to the east of the Sheriffhall roundabout. The Waverley Route alignment ran slightly to the east of this point. Its formation was obliterated by the building of the City Bypass in the late 1980s. When the Borders Railway was created, it was necessary to construct the bridge seen in the background. In order to do this, a large U-shaped diversion for the road was created alongside the spot and a section of the road was then closed for several months in 2013, with traffic rerouted over the diversion. During this time, the original road embankment was excavated and the bridge inserted, then the embankment was reinstated, the road reopened and the diversion dismantled.

a regular steam locomotive fitted with a spark arrestor, as was seen elsewhere.

Paper making was somewhat of a speciality industry of the old Midlothian, with numbers of mills located on both the Water of Leith and the North Esk. They were all rail-connected, with those on the Water of Leith being on the Balerno branch and those on the North Esk being connected to either the North British's Polton branch or its Penicuik branch. Your author well remembers an advertisement that regularly appeared in his monthly railway magazine during his youth in the 1960s. It ran "*Modern Railways* is printed on 'Galart' machine-coated paper with an esparto body, as are many other quality and technical publications. Made exclusively by John Galloway and Co.Ltd., Balerno, Midlothian. World enquiries solicited." The railways served to both bring in raw materials, such as esparto for making the paper or coal for the boilers, and to export the finished product. Eventually the traffic was lost to road transport and, with passengers having long been lost to bus services, which were far more frequent and, in the case of the North Esk valley, took a much more direct route into Edinburgh, this led to the branches closing. The mills themselves did not last much longer, with paper making ceasing at all the locations bar one by the early 1970s. The exception was Dalmore mill at Auchendinny, which survived until 2004, although it had no longer been rail-connected since the demise of the Penicuik branch in 1967.

Another industry associated with the county which, certainly in the twentieth century, was unique was oil-from-shale. This involved heating the shale in the absence of air to drive out the crude oil, unlike the modern method of hydraulic fracturing ('fracking') that's used to obtain oil from shale. The Central Belt of Scotland was rich in oil-bearing shales, which were extensively worked in the second half of the nineteenth century. However, the boom was short-lived: of well over a hundred oil works, with their associated shale mines, in existence after the Scottish 'oilmania' of the late 1860s, only a dozen were still active by the beginning of the twentieth century. The majority of Scottish shale works was located in West Lothian and Lanarkshire but a number was situated in the western part of Edinburghshire, to the west of the Pentland Hills.

The retorts at the oil works produced crude oil but, in order to satisfy consumer demand for its different fractions, it needed to be refined. Then, as now, this was carried out by the process of fractional distillation. A refinery, one of several at the time, was set up at the settlement of Pumpherston, about a mile south east of Uphall station, in 1882. This was connected to the NBR Camps branch which ran southwards from a junction just to the east of Uphall station. 'By the skin of its teeth' the refinery was in Edinburghshire : the county boundary ran along the refinery fence! While the old boundary with Linlithgowshire (nowadays West Lothian) generally ran along the River Almond, in the area just to the east of Livingston it took an excursion northwards to encompass an almost rectangular area reaching towards Uphall Station, as the community is now known – the railway station here is shown on old maps as Houston station. Within this area lay the farm of Pumpherston Mains, at which location the refinery was built, along with housing for the workers. Crude oil was transported by rail from surrounding oil works to the refinery.

Production of oil from Scottish shales declined in the face of competition from imported overseas crudes and, by 1934, Pumpherston was the last refinery still processing crude oil from shale. From the 1940s onwards, its input was supplemented by the output of one of Britain's very few inland oilfields, the Eakring field in Nottinghamshire. The last of the West Lothian oil works closed in 1960 and, for the last four years of its life, until closure in 1964, Pumpherston existed solely to process crude oil from Nottinghamshire. Thereafter, the English crude was processed at Grangemouth until Eakring ceased production in 1971.

The daily 'Eakring oil train' originated from Farnsfield, running via Mansfield, Shirebrook, Rotherham and the Swinton & Knottingley to Skelton New Sidings at York and then northwards over the ECML. In 1962 it switched to starting from Ollerton, which was actually slightly nearer to Eakring than Farnsfield, and ran via Tuxford and northwards thence via the ECML. While the load did not present any great problem for the rostered motive power in terms of haulage, what was essential was sufficient braking power for the maximum load allowed, which was 22 loaded four-wheel tankers plus barrier vehicles. An older friend who has recently passed away and who was a fireman at St. Margaret's in the 1950s, told me a story of working the train one time. Having descended the bank from Grantshouse to Cockburnspath, he looked out of the cab window to see smoke coming from the locomotive brakes, which were red hot. They had to 'go inside', probably at Innerwick, to let them cool off before proceeding.

A final Edinburghshire railway 'oddity' was the Lauder Light Railway, approximately one-third of whose ten miles lay within the county. This line was known, in its last days, for being worked by a Great Eastern J67 0-6-0T from Galashiels shed equipped with a tender. The water supply for the locomotive was carried in the tender and the side tanks were kept empty so as to keep the axle loading below the line's limit. (see *Backtrack* Vol.36 No.9, September 2022)

The Lauder Light was the first built-from-scratch light railway in Scotland, authorised under the provisions of the 1896 Act, to carry passengers. Opening in 1901, it climbed from an elevation of around 660ft at Fountainhall, in the valley of the Gala Water in Midlothian, for 2½ miles at 1 in 50 to a summit, at 944ft above sea level, in the hills before dropping again, down to Oxton in the valley of the Leader Water. From Oxton it followed the Leader Water down to Lauder, giving the line a decided 'L' shape overall. Passenger services ceased as early as 1932 in the face of road competition and goods services might well soon have gone the same way, had it not been for the setting up of a Ministry of Food buffer depot at Lauder at the start of the Second World War. This depot contained emergency supplies of basic staple foods, chiefly flour, which would have been distributed to the civilian population in the event of food not being available during an emergency. Because of the poor road network in that part of the country, supplies were brought in to the depot by rail. The buffer depot continued in existence into the 1950s because of the Cold War and continued to be supplied by rail.

At the beginning of August 1948 south east Scotland was hit by days of torrential rain, which led to severe flooding and severed many rail links in the area, including the Lauder Light, which was covered by landslips near the Gala Water bridge at Fountainhall. While at least one line in the area, the Reston to St. Boswells route between Duns and Greenlaw, was never restored to traffic after the floods, the Lauder line soldiered on, reopening in November 1950. A review of the need for the food buffer depot and the continued decline of local goods traffic led to its eventual closure in September 1958.

The Heart of Midlothian

Ask most local football fans in the east of Scotland what this name signifies and they will tell you that it belongs to a Scottish Premiership team which they either love or loathe, depending on their own allegiance. Alternatively, if you ask a railway enthusiast, they may tell you that it was the name of a titled train which operated between Edinburgh and London from 1951 until 1968, firstly with steam and then with 'Deltic' haulage. However, what is the origin of the name of both the train and the football club?

The name was given by Sir Walter Scott to the Tolbooth which stood on the Royal Mile in Edinburgh, close to St. Giles Cathedral and the old Scottish parliament building. The Midlothian County Buildings were erected within a stone's throw of the site in the early twentieth century. Established under royal charter in the fourteenth century, the tolbooth was a municipal building which served a number of purposes down the centuries. It housed the burgh council and hosted early meetings of the Scottish parliament and sittings of the Court of Session, as well as being home to the burgh gaol. There were two different buildings down the years, the second of which was demolished in 1817. Conditions for prisoners in both were said to be equally vile.

Sir Walter Scott used the name for one of his 'Waverley' novels, published in 1818. The plot centred around the wrongful imprisonment of one of the story's two heroines in the Tolbooth. Because the tolbooth was very much at the heart of the county, Scott chose the name *Heart of Midlothian* for the novel.

The name was subsequently adopted both for the football club (1874) and the train.

Given that many names from the 'Waverley' novels were adopted for locomotives by the North British Railway and then the London & North Eastern Railway, and even reused on A1 Pacifics by British Railways, one might have expected *Heart of Midlothian* to be included in the list of those names so used, though, of course, it wasn't. What the NBR did do was to apply the name *Midlothian* to one of its first Atlantics and the name was reapplied by BR to one of the A1s. Was that last a form of penance for the first *Midlothian,* the last of the NBR Atlantics to survive, being broken up for scrap at the beginning of World War II, even though it was supposed to have been set aside for preservation?

Acknowledgement

The maps website of the National Library of Scotland proved invaluable in the compilation of this article.

Bibliography

Early railways of the Lothians, M. J. Worling, published by Midlothian District Libraries, 1991

Lost railways of Midlothian, privately published by W. & E. A. Munro, 1985

An illustrated history of Edinburgh's railways, W. A. C. Smith and Paul Anderson, Irwell Press, 1995

Mining the Lothians, Guthrie Hutton, Stenlake Publishing, 1998

A Regional History of the Railways of Great Britain, Vol.6 : Scotland – the Lowlands and the Borders, John Thomas, published by David & Charles, 1971

Industrial locomotives of the Lothians, Ian Brodie, Stenlake Publishing, 2006

The 'Locations' pages for Smeaton and the Lauder Light Railway on the Railscot website

The Lothians' last days of steam, W. A. C. Smith, Stenlake Publishing, 2005

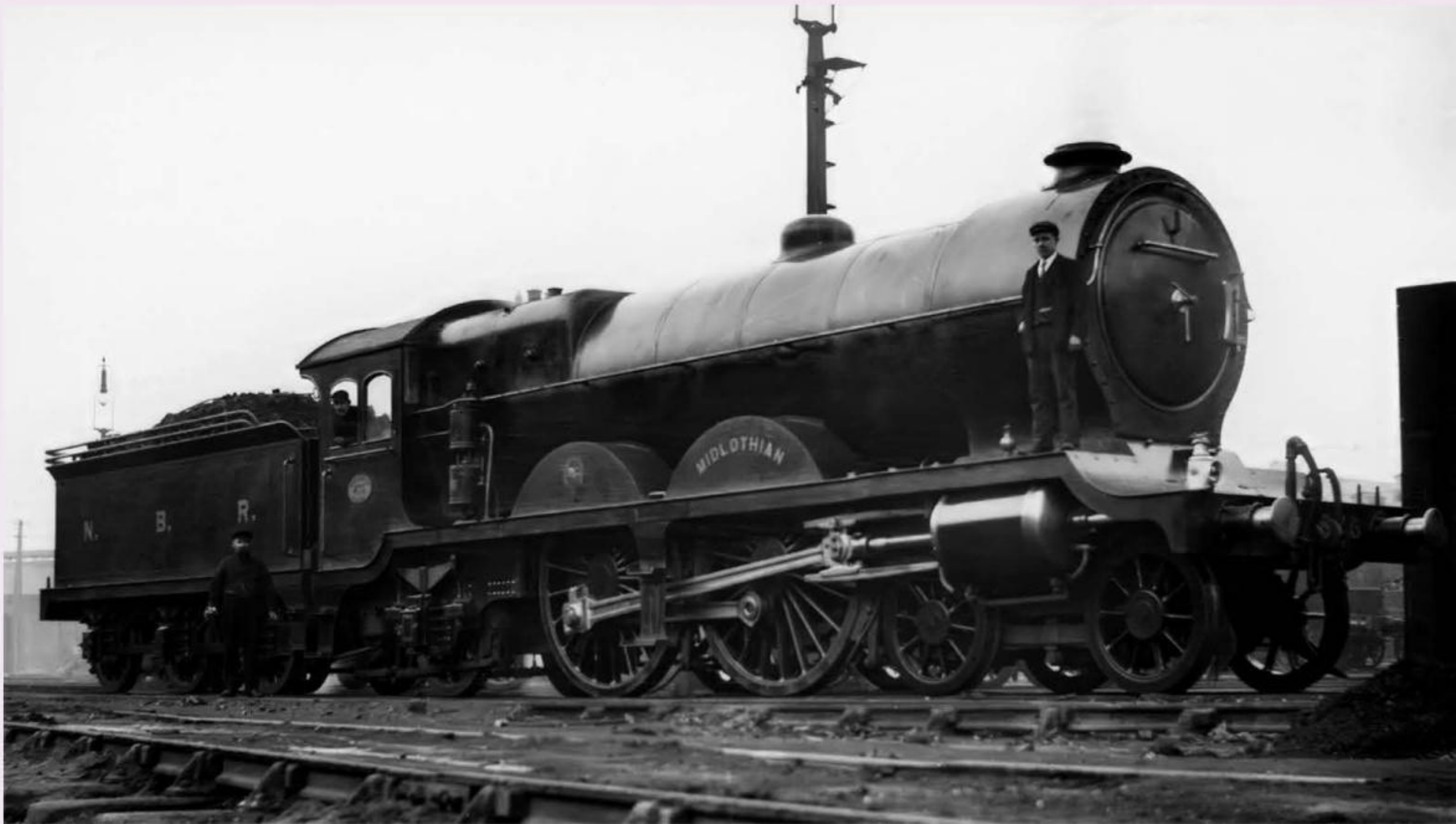
The Glencorse Branch, Jeff Hurst, Oakwood Press (Locomotion Paper no.211), 1999

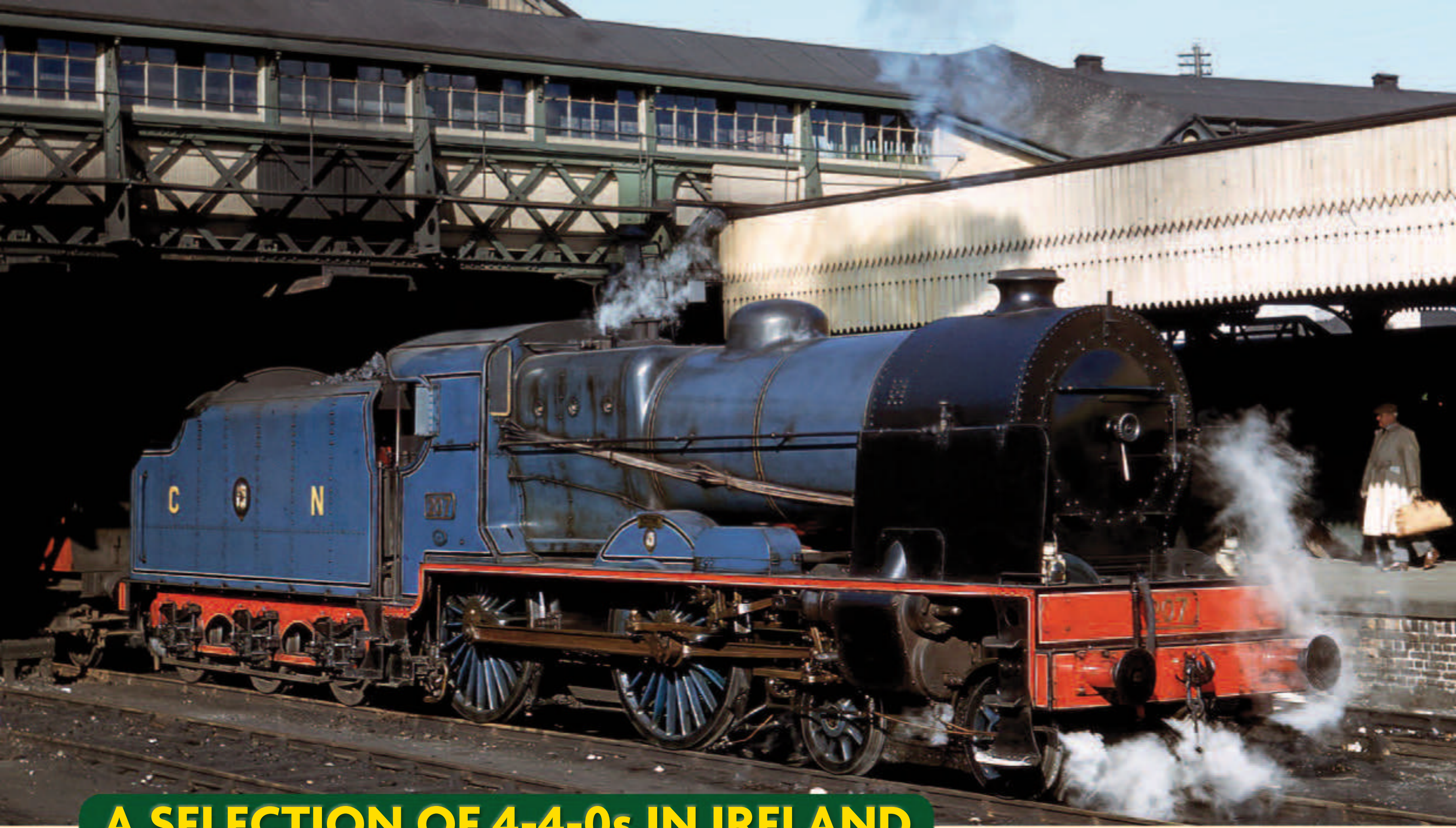
The Scottish Shale website, www.scottishshale.co.uk, particularly the Pumpherston Oil Works page

An article in *British Railways Illustrated* magazine, Nov. 2004, about the Eakring oil train

Wikipedia articles about the Lauder Light Railway, the Heart of Midlothian and Old Tolbooth, Edinburgh

North British Railway 4-2-2 No.875 *Midlothian* at St. Margaret's depot in Edinburgh. It entered service in August 1906 and was withdrawn in December 1937, with rumours around that it was to be preserved. These were strengthened when it was returned to work in June 1938, but it was finally withdrawn in November 1939 and, with the country now at war, soon scrapped.
(Rail Archive Stephenson)



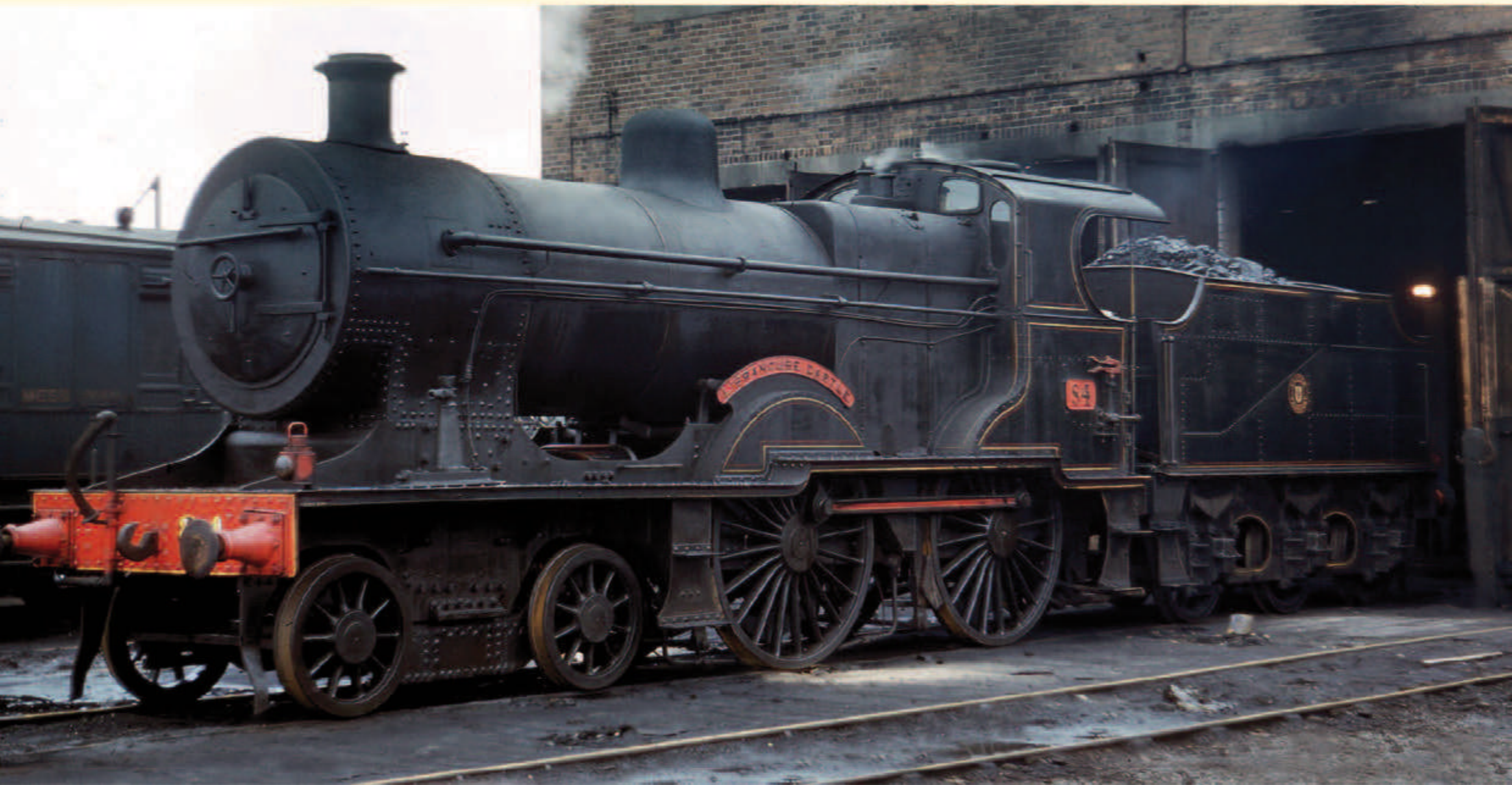


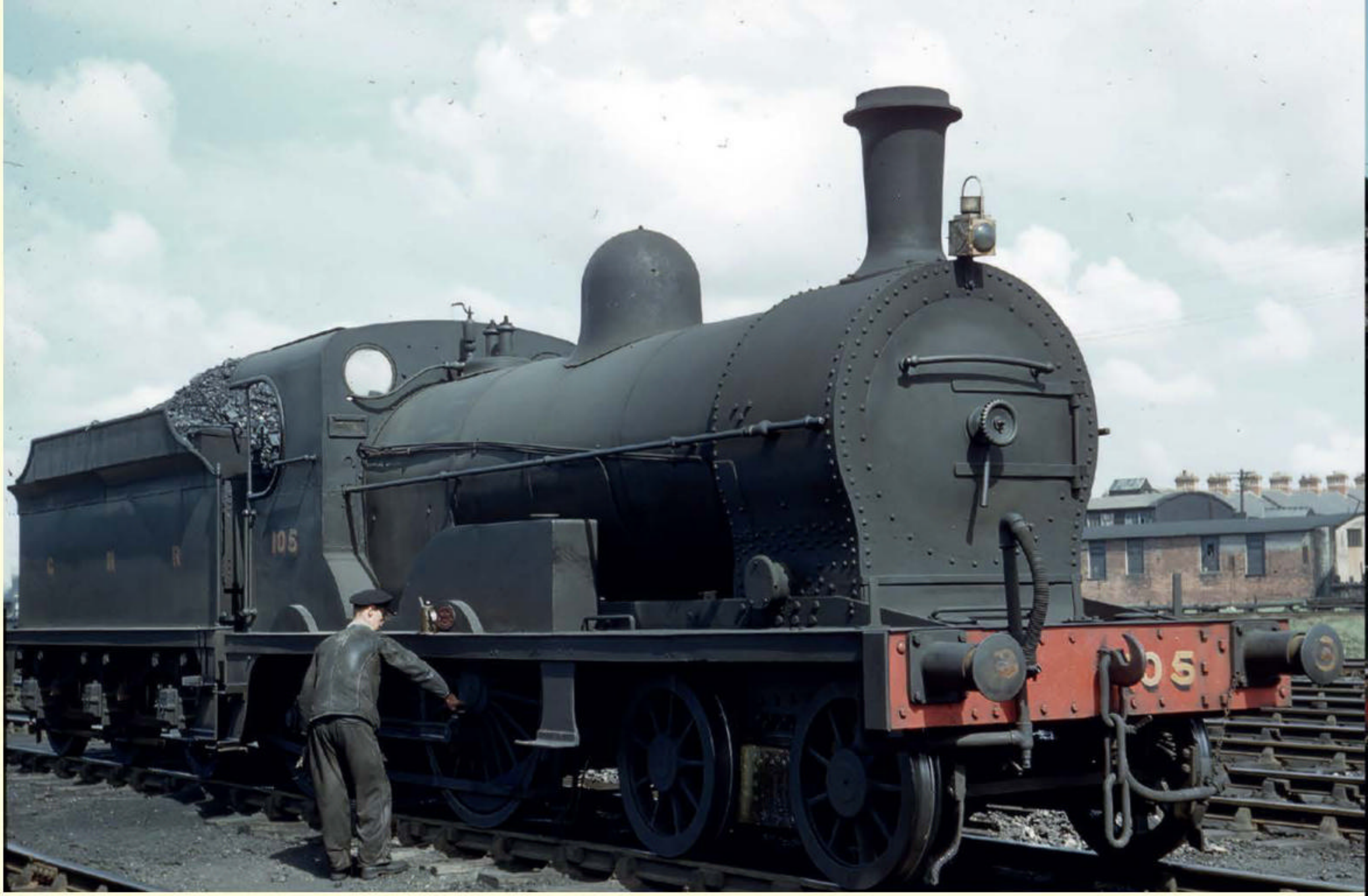
A SELECTION OF 4-4-0s IN IRELAND

Although six-coupled locomotives – Moguls and 'Jeeps' on the Northern Counties, Woolwich Moguls on the Midland Great Western and a selection of 4-6-0s on the Great Southern & Western/Great Southern culminating in the mighty, mythical 'Queens' – were used in express service on Irish railways, it would be fair to say that the 'regular' 4-4-0 ruled the roost. Indeed the Great Northern (Ireland) never saw any need to use anything larger than a 4-4-0 and locomotives of this wheel arrangement, both compound and simple, handled all its crack international trains. This selection of images from the COLOUR-RAIL Collection has a GN(I) bias with a couple of other companies represented by way of contrast. Caption details are by **DAVID MOSLEY**.

ABOVE: **This may well be a familiar picture but who could resist this glorious study of GN(I) Class VS 4-4-0 No.207 *Boyne* making ready, on the morning of 4th May 1957, to leave Dublin (then Amiens Street, now Connolly) with an express for the North. The five locomotives of the three-cylinder VS Class were the last new 4-4-0s to be built anywhere in the world. Named after Irish rivers, they were delivered from Beyer, Peacock in the late summer of 1948 and worked turn-and-turn-about with their older compound colleagues of Class V on the cross-border expresses. With the break-up of the Great Northern *Boyne* became part of CIE stock but was sold to the Ulster Transport Authority in June 1963 and was the last of the class to survive, not being withdrawn until December 1965.** (Colour-Rail.com FIE05859)

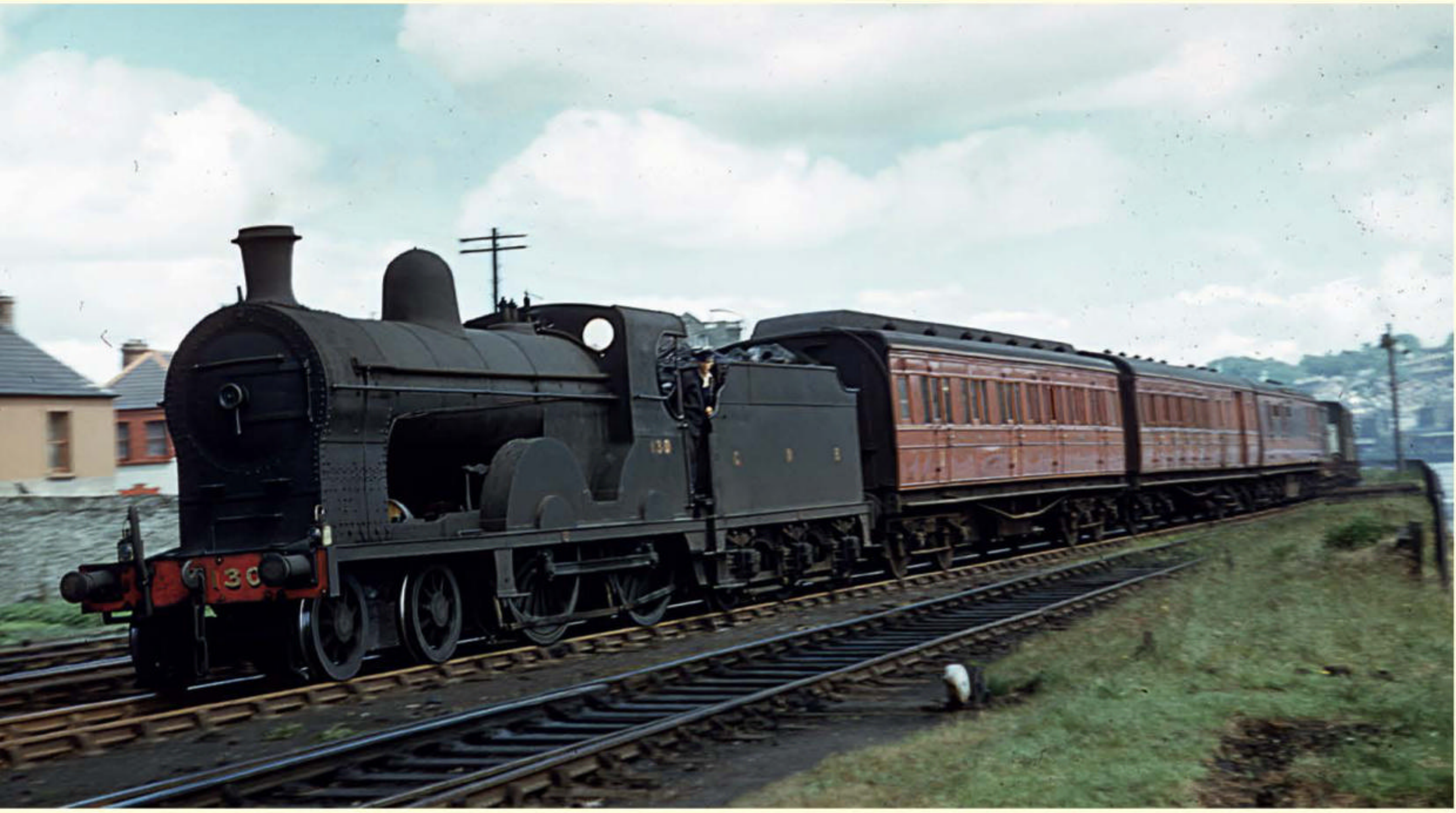
BELOW: **With the Red Hand of Ulster displayed prominently on the crest on the tender, former Northern Counties Committee Class U2 No. 84 *Lissanoure Castle* stands on shed at York Road, Belfast, in May 1957. Despite its 'Derby lineage' No.84 was an entirely York Road Works creation, having first appeared as a von Borries two-cylinder compound in 1905 and being rebuilt into the form seen here in 1929. The locomotive was last used in 1960 and was broken up a year later.** (Colour-Rail.com FIE 05850)

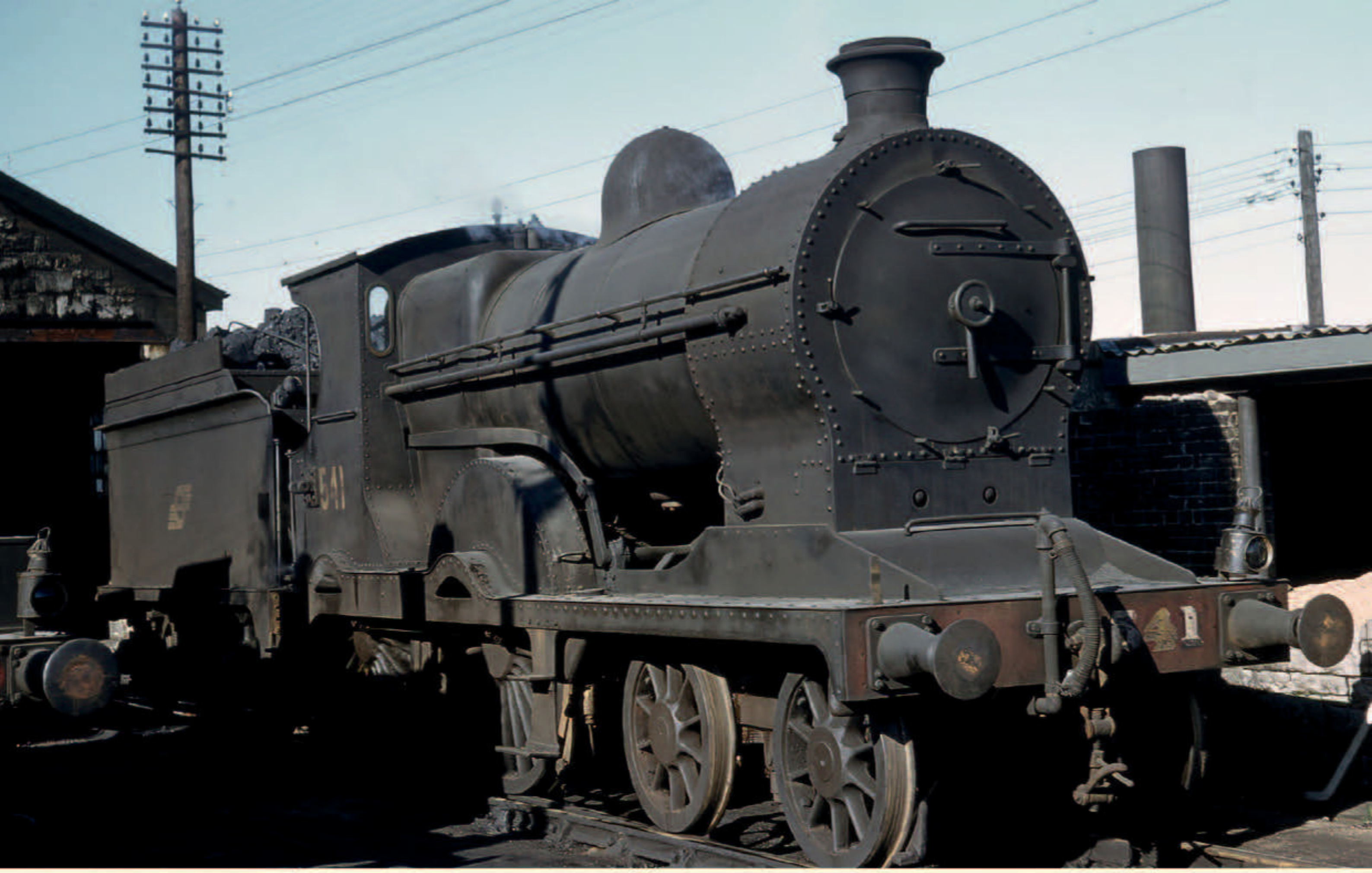




ABOVE: **Two photographs taken at the locomotive shed in Londonderry in the 1950s go further back into GN(I) 4-4-0 lineage. A Class P 5ft 6in 4-4-0 is being prepared for its next duty – probably a stopping passenger train. Hopefully there is as much oil on the bearing as is on the footplateman's overalls! Built at Dundalk in 1906, No.105 originally carried the name *Foyle* – appropriately as the cameraman is standing with his back to the river of that name. The locomotive went into CIE stock upon the break-up of the Great Northern and was withdrawn from service in May 1960.** (Colour-Rail.com FIE05851)

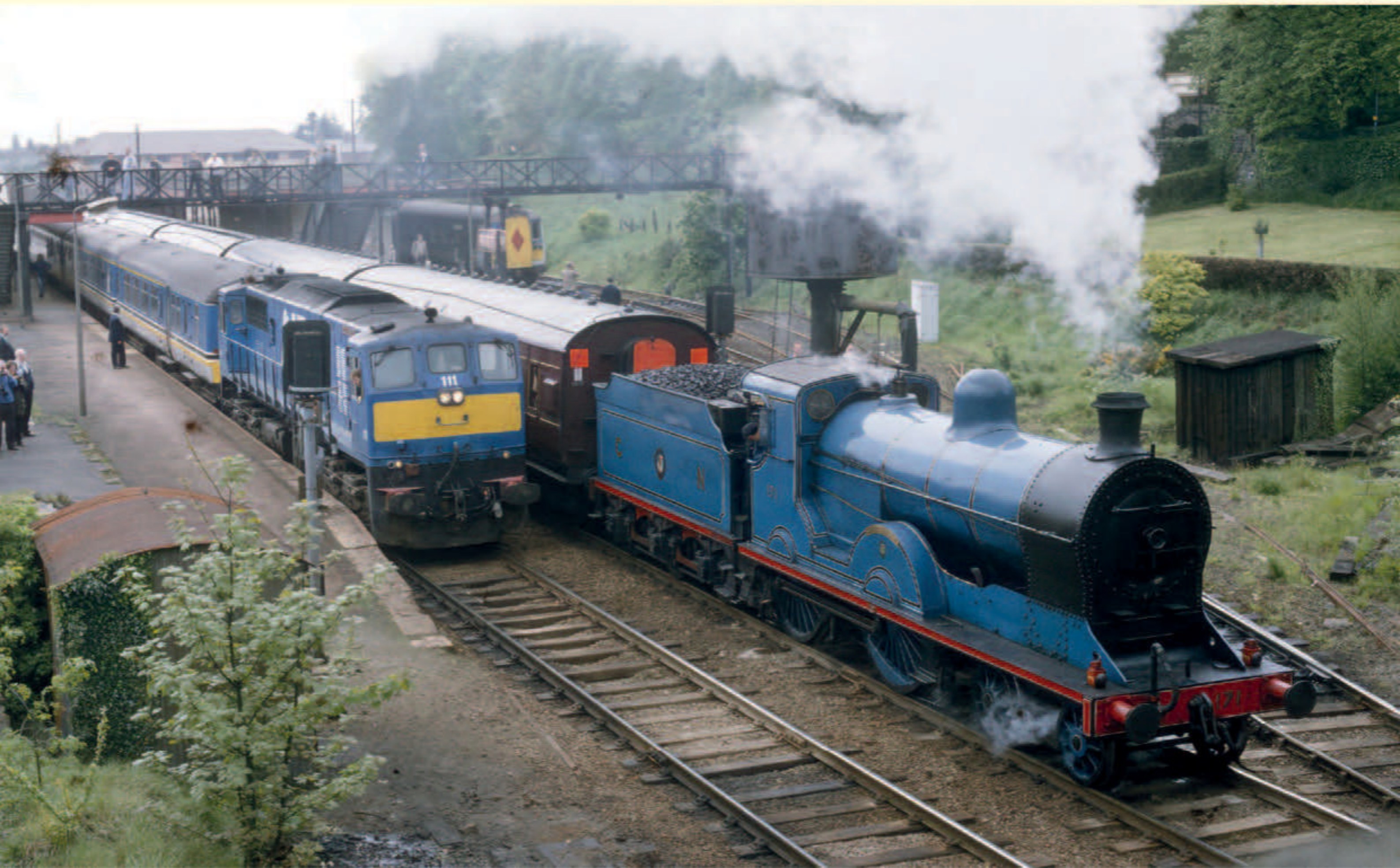
BELOW: **With the arrival of the Q Class, designed by Chief Mechanical Engineer Charles Clifford and delivered in three batches between 1899 and 1904 from Neilson Reid, North British and Beyer, Peacock, one recent historian of Irish locomotive matters argued that "for the first time, the GNR had an express engine which could vie with the best in Ireland and Britain". No.130, seen here in 1959, its last year of service, was delivered from Neilson Reid in 1901 and originally carried the name *Saturn*. The Q Class names were inspired by classical mythology, with No.123 carrying the unlikely moniker *Lucifer!*** (Colour-Rail.com FIE05857)

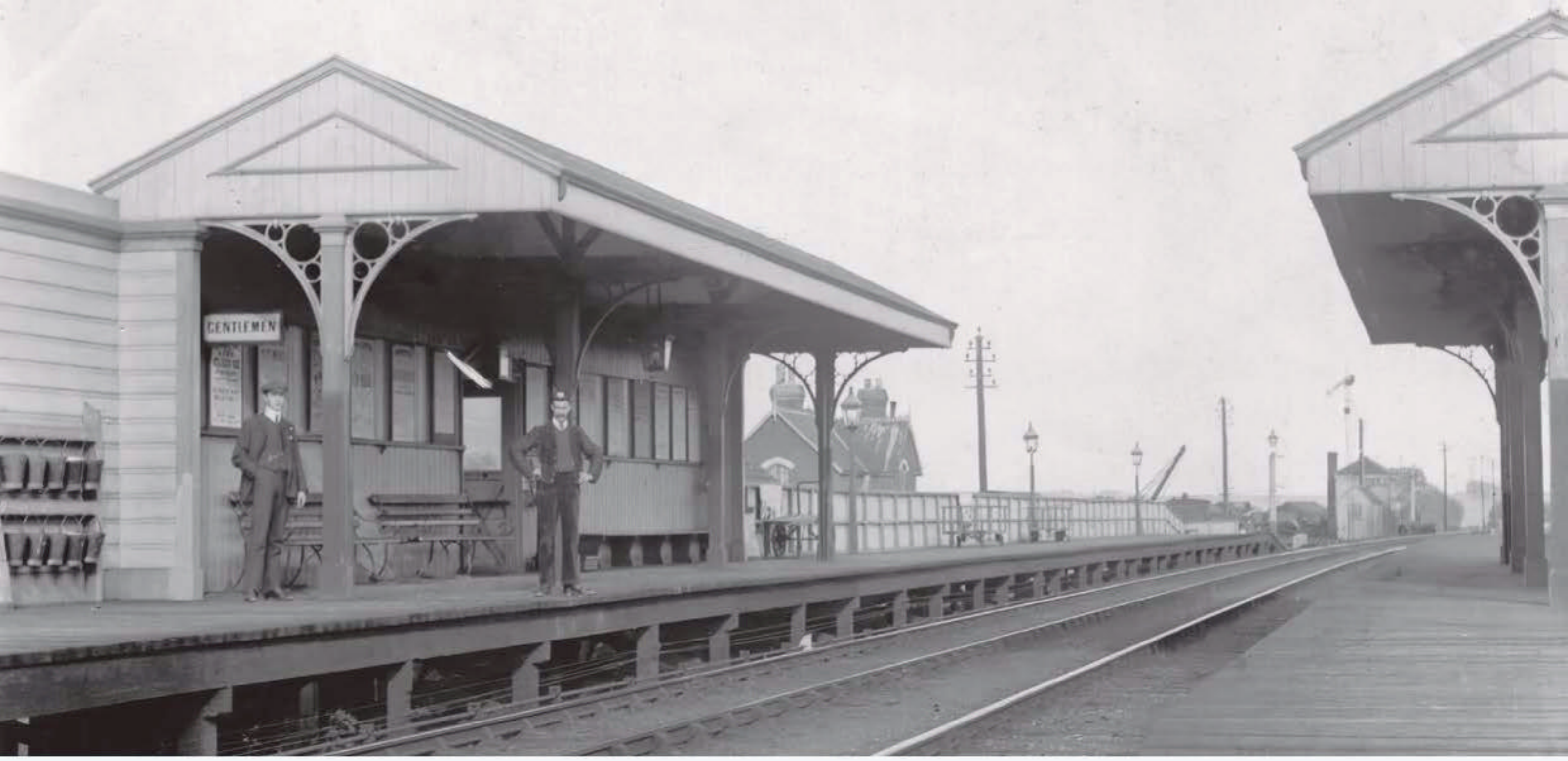




ABOVE: **Seen on shed at Athlone in September 1957, Coras Iompair Eiraenn 4-4-0 No.541 looks pretty woebegone. The locomotive began life as Midland Great Western Railway Class C carrying the number 8 and the name *St. Patrick*. The locomotive was constructed in 1913 at the Broadstone Works from parts supplied by Kitson. *St. Patrick* and his brothers were not highly regarded by authority at Inchicore, the 1948 motive power assessment stating "sluggish bad running engines. Can run on DSER section but cannot keep time". The locomotive was withdrawn from service in 1959.** (Colour-Rail.com FIE 05862)

BELOW: **Since the demise of steam on Ireland's main lines the Railway Preservation Society of Ireland has 'kept the faith' by, on occasion, operating the Great Northern 4-4-0s No.131 (Q Class), No.8 *Merlin* (V Class, three-cylinder compound) and, pictured here at Lisburn in the 1990s, No.171 *Slieve Gullion* (S2 Class). The diesel at the platform is Northern Ireland Railways General Motors Co-Co diesel-electric No.111 – named *Great Northern* and appropriately in blue livery.** (D. W. Mosley)





Hurstbourne: looking towards Whitchurch with wooden platforms and buildings and the signal box in the left distance. There are a smart gent and a posing porter but the station is otherwise deserted. (John Alsop Collection)

FROM HURSTBOURNE AND AND THE 'SPRAT & WINKLE' AND THE

BY BRUCE LAWS

In Part One of this article last month I examined the background, context, construction and opening of the railway lines from Andover to Kimbridge Junction and Hurstbourne to Fullerton. In Part Two I will look at the traffic and operation of the lines, the effects of grouping and nationalisation, the decline and closure of the lines, locomotives and rolling stock, the origins of the nicknames and what remains.

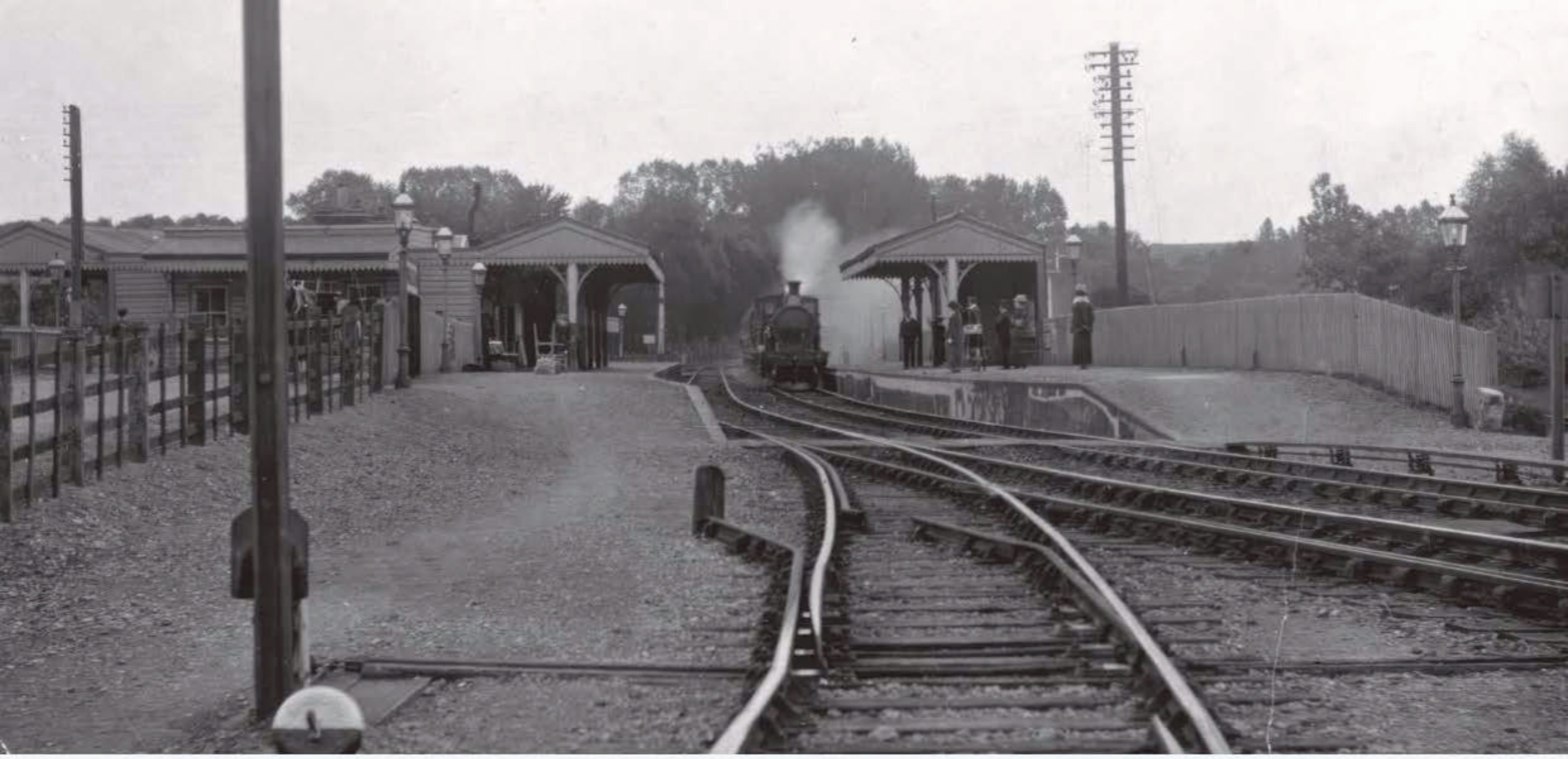
Traffic and operation

From the opening of the Andover to Kimbridge line in 1865 there were four trains both ways daily, one of which was mixed passenger and goods. There was an extra train from Southampton to Romsey. There was one passenger train either way on Sundays. The trains took 90 minutes to traverse the 28-mile route calling at all stations. Mixed trains took two hours.

When the Fullerton to Hurstbourne Line opened the *Andover Advertiser* reported that four passenger trains ran both ways on the line connecting as appropriate with trains from Waterloo and Salisbury. There was no Sunday service. The branch trains shuttled between Fullerton and Whitchurch (the Didcot, Newbury & Southampton Railway had its own station at the latter village). By the 1890s the service had enlarged to five trains a day but omitting the connection to the DN&SR. Branch passenger traffic was always light although it was popular with anglers who visited to fish the River Test, one of the finest trout rivers in the country. The line by some means attained the nickname of the 'Nile Valley Railway'. Queen Victoria apparently preferred to use this route on the way to and from Osborne House on the Isle of Wight, as it did not involve passing through any tunnels.

The 1895 *Bradshaw* timetable indicated that five regular trains ran both ways on the Andover to Kimbridge line on weekdays with two on Sundays. These seemingly to ran to Southampton Docks via Redbridge. (The *Bradshaw* public timetables are consistently imprecise about whether journeys are through or by connecting services). Furthermore there were limited weekday stopping trains at 2.06pm from Southampton and 5.15pm from Andover Junction. These were daily through trains between Sheffield and Southampton, running as originally foreseen over the Midland & South Western Joint Railway line and branded 'South Express' and 'North Express' respectively. On Saturday mornings there was an American and Cape Lines Express, at 2.05am from Derby, 7.17am from Andover Junction, and non-stop from there to Southampton West End. The train apparently connected at Derby with an up overnight 'Scotch Express' but I do not know if there were actually any through coaches.

By 1913 the London & South Western Railway recognised that the Longparish line would never generate enough traffic to repay its investment and the whole branch was



Fullerton Junction station looking towards Wherwell with the main station building on the left. (John Alsop Collection)

OVER TO KIMBRIDGE JUNCTION
LONGPARISH BRANCH PART TWO

singled on 13th July 1913. Major John Wallace Pringle, another former Royal Engineers officer, inspected the singled line on 21st July 1913 and approved the new method of working on the condition that "an undertaking to work traffic upon the electric tablet method is furnished by the company". Pringle was subsequently promoted to Chief Inspecting Officer of the Railways Inspectorate in 1916. Once again (what choice did it have?) the company complied. Wherwell station was reduced to just one siding and the signal boxes at Longparish and Wherwell were replaced by ground frames and the branch was worked as a single block section by Tyer's No.6 Electric Train Tablet instruments. Tyer's Electric Train Tablet system, invented by the British engineer Edward Tyer, was a system of signalling for single track railways which used a hard disc called a tablet. The tablet apparatus, located in signal boxes, electrically locked the section signal lever such that, unless the train possessed the tablet, it could not enter the next section of the single line. Thus the train crew were provided with a physical assurance that their train had exclusive right of way on the branch.

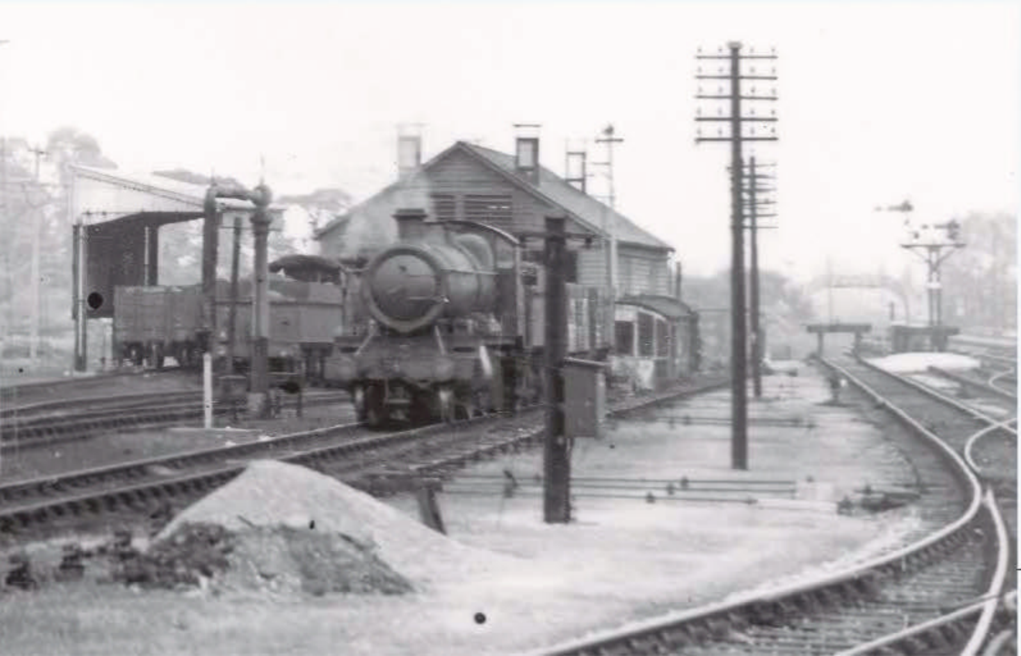
In 1914 James Taylor Ltd. set up a sawmill near Longparish station, incorporating a narrow gauge railway to take timber from the Harewood Forest through which the line ran to the station yard. The sawmill employed more than 100 men between 1914 and 1919. In 1915 a wood distillation factory was built next to the sawmill by Kynock Ltd. and in 1916 a new siding was added to serve this factory, whose production of charcoal, wood alcohol and wood oil was usually transported by rail. A special daily workmen's train ran from Whitchurch. Although the wood distillation factory stopped production in 1919, both Longparish and Wherwell continued to handle considerable amounts of agricultural products, particularly hay for the army and straw for the local strawberry beds. Longparish at this time had two coal yards and the engineering works of Messrs. Kennedy & Kemp was despatching their heavy chains by rail.

The Longparish branch was used to transport horses from the many racing stables near Stockbridge. During the First World War the line was used to transport troops and supplies from Salisbury plain to Southampton Docks for onward transport to France.

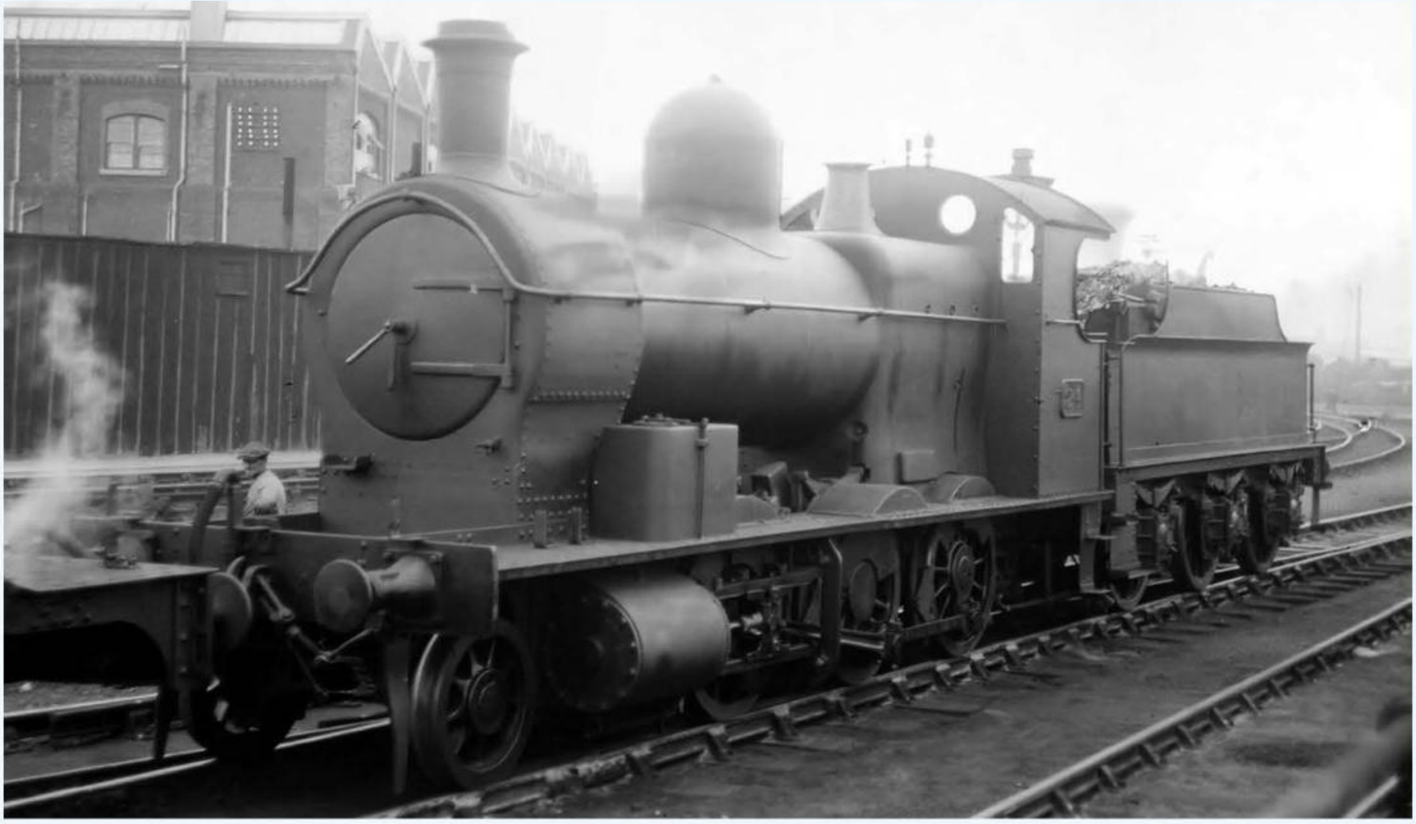
Grouping

The Government had taken direct control of the railways during the First World War. Control was not handed back to the railway companies until 1921. The Railways Act of the same year (also known as the Grouping Act) sought to reorganise the country's myriad separate railway companies into just four major groups. In this manner the Government sought to move the railways away from internal competition (and in so doing curb the losses being made by many companies) while retaining some of the benefits which it considered had been derived from a Government-controlled railway during and after the First World War.

Under the terms of the Railway's (Southern Group) Amalgamation Scheme of 22nd December 1922, enacted under the Railways Act, the London & South Western Railway Company became part of Southern Railway Company as from 1st January 1923 together with the London, Brighton & South Coast Railway and the South Eastern & Chatham Railway. Effective from 1st July 1923, the Great Western Railway subsumed many smaller lines, including the M&SWJR. At the grouping the M&SWJR owned 29 locomotives,



Andover LSWR and MSWJR sheds. Sited to the north east of Andover Junction station, the MSWJ shed, dating from May 1882, is the one on the right. The shed only had a very small allocation. The LSWR shed is to the left. After nationalisation the two sheds were combined and the former MSWJR shed was demolished sometime before 1956. (Author's Collection)



Ex-Midland & South Western Joint Railway Beyer Peacock 2-6-0 locomotive 'Galloping Alice'. Delivered in 1897 as MSWJR No.16, it made it into Great Western ownership when the former was absorbed into the GWR at the grouping of 1923. Given the No.24, it was mainly used on pick-up goods services between Swindon and Stoke Gifford. Shown here as 'Swindonised' with GWR No.9 boiler (as fitted to a number of absorbed locomotives), new chimney and a group standard 2,500-gallon tender, the engine was taken out of service and disposed of in 1930. (Author's Collection)

134 coaching vehicles, and 379 goods and service vehicles.

The actual tangible result of the grouping legislation was the creation of new, bigger, but still rival companies with no territorial rights, continuing competition and ongoing duplication of routes of different companies in the same geographic locations. The great Nikolaus Pevsner, writing on travel in the UK in the 1930s, commented "Every place has two or more stations…." He was clearly puzzled by the presence of four major British railways each with its own distinguishing liveries, often covering the same territory. If he had stood on Fullerton Junction station in 1923 what would he have made of the locomotives of the former LSWR sporting various shades of green hauling salmon and brown carriage stock with former M&SWJR engines in Midland red pulling goods trains liveried in mid-grey with the letters M S W J R in white shaded black or, later, Southern Railway green locomotives and carriages running through together with the dark green locomotives and brown and cream coaching stock of the GWR?

Thus, although the lines that are the subject of this article were legally under new overall management, many of the resulting gradual changes were not immediately visibly evident. However, the Southern Railway pretty soon embarked on moves to remove unnecessary duplication within its territory and rationalise lines which were not perceived as offering potential for realistic profits. By 1924 the passenger service over the Longparish branch was down to only three daily weekday trains in each direction between Whitchurch and Fullerton Junction.

In an artistic aside, the railway between Wherwell and Fullerton was used as the location for the 1927 Piccadilly Pictures silent film of Arnold Ridley's *The Ghost Train.*

Passenger services were withdrawn from the Longparish branch on 6th July 1931. Accordingly, although the line was then used for goods traffic, Fullerton station lost its 'Junction' appellation. The track between Hurstbourne Junction and Longparish was lifted completely on 29th May 1934. Freight continued between Longparish and Fullerton Junction with that section being worked as a goods siding from Fullerton on the 'one engine in steam' principle.

The lines which are the subject of this article experienced a boom (fortunately not literally) in freight during World War II when a Royal Air Force Maintenance Unit ammunition stores was built in Harewood Forest near Longparish in 1942. The sidings at Longparish were re-laid in the opposite direction, and extended. At the same time Fullerton Junction station was provided with an air raid shelter for staff. By the end of 1943 nearly 600 wagons of 4,000lb blockbuster bombs arrived by rail each month and by June 1944 there were apparently 6,000 wagon loads of bombs and bullets secreted in Harewood Forest.

Nationalisation

The four main UK railway companies were nationalised under the terms of the Transport Act 1947. On 1st January 1948 both the Southern Railway and the Great Western Railway were incorporated into a single national conglomerate, British Railways, at first under the overall administration of the British Transport Commission and later under the British Railways Board. The Southern Railway became in essence the Southern Region of British Railways, with the Great Western becoming the Western Region. However, as in the period after the grouping, neither the railway worker nor the railway user would have immediately noticed much difference because the initial Regional organisation of the railways was not based on geographical considerations but followed the divisions of the former companies. Thus Southern Region lines continued their LSWR heritage while the influence and image of the old Great Western Railway was unchanged in the operation of the Western Region. The branches which are the subject of this article carried on pretty much untouched and the general deterioration that had been a factor since the 1930s continued.

British Railways soon slated the remainder of the Longparish line for closure but were apparently persuaded to desist by the military authorities who claimed that the branch still had a role to play in clearing the area of stored ammunition. Indeed they were proved correct in the short term for it was not until the early 1950s that ammunition removal from the Harewood Forest site was completed – although Gerry Smith, whose father started his railway career at Longparish station and who grew up in a delightful thatched-roofed cottage close to the Longparish branch at Wherwell, remembers, as nine or ten-year-old, finding a hand grenade in Harewood Forest not far from Longparish station.

Decline and closure

After the clearance of the Harewood Forest munitions stores was completed goods services continued on the Longparish branch between Longparish and Fullerton Junction. From the early 1950s this consisted of only one daily

707
SOUTHERN
SOUTHERN

Darrell Smith's records show T9 Class 4-4-0 No.30707 as one of the regular Longparish branch locomotives. Here we see this handsome engine as No.707 in Southern Railway days. The locomotive was based at Eastleigh in 1948/49, at Basingstoke in 1952 and again at Eastleigh from 1955 to 1957. (Author's Collection)

run. By March 1956 this had reduced yet more to one train running on Mondays, Wednesdays and Fridays. This finally ended on 28th May 1956 although the track was thereafter used for the storage of condemned vans and wagons. In 1957 the Longparish line was used to trial the Southern Region's new diesel multiple units before they went into service. The line was finally taken out of use in April 1960 and even then a short section at Fullerton clung on until 1st June 1964. Gerry Smith remembers seeing a long line of condemned wagons "which seemed to stretch for miles". The line was also used to store doomed electric multiple unit of the 4-SUB variety.

The Andover to Kimbridge line remained rural in nature, as the Midland & South Western Junction line never developed as intended into a busy trunk route, closing in 1961. After closure of the remainder of the M&SWJR the Kimbridge line from Andover had only the residual local traffic from small communities and it inevitably closed to passenger services after the last diesel passenger train ran on 7th September 1964. Andover Junction station was renamed Andover on the same date. Complete closure of the Andover to Kimbridge section followed in 1967 after which the track was lifted.

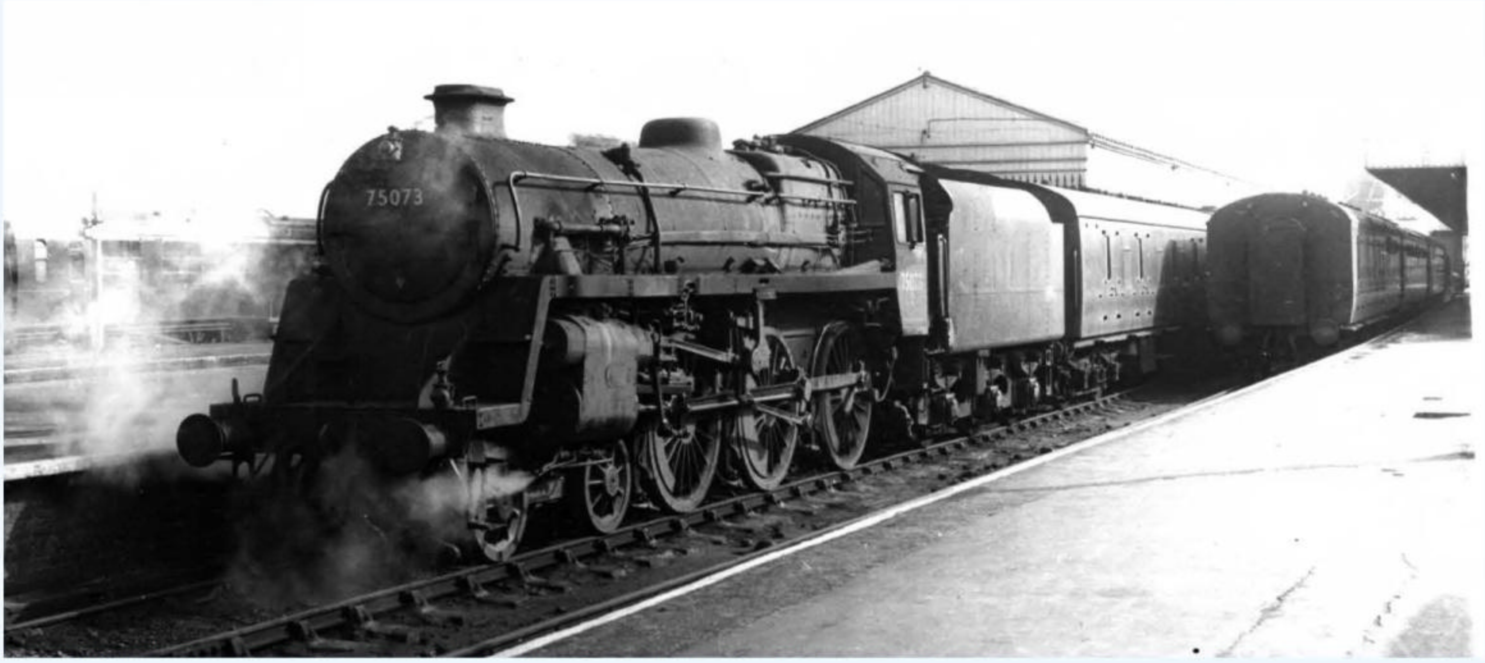
Locomotives and rolling stock

There were two engine sheds at Andover Junction to serve the local LSWR and MSWJR lines – situated side by side on the west side of the LSWR line at the north end of Andover Junction station. The MSWJR shed, a timber-built 2TS dead-ended shed was opened in 1882. The LSWR shed, a corrugated iron 2TS dead-ended shed opened in 1904, was further away from the main line having been built after the MSWJR shed to replace a smaller one originally located on the other side of the main line.

Andover Junction MSWJR shed only had a small allocation but was home, after the grouping, to the GWR 'maid of all work' '43XX 2-6-0s. Here is No.4377 at Banbury shed – latest possible date 1957. (Author's Collection)

It is reasonable to expect that many of the locomotives allocated to these sheds would have travelled the Andover Junction to Kimbridge line. The MSWJR shed only had a small allocation but was home, after the grouping, to a few former M&SWJR 4-4-0s (which the GWR subsequently 'Swindonised') and a series of mixed traffic GWR '45XX' 'Small Prairie' 2-6-2T and the maid of all work '43XX' 2-6-0s. One very interesting locomotive known to have traversed the 'Sprat & Winkle' was a distinctive 2-6-0 tender engine that the M&SWJR ordered from Messrs. Beyer Peacock of Manchester. Depending on the source of your information, this locomotive was either originally destined for overseas use in South America or South Australia but never delivered, or was closely based on the an engine built for South Australia. The locomotive, delivered in 1885, featuring 4ft driving wheels and outside cylinders, became M&SWJR No.14. It proved to be very successful and another was ordered to basically the same design. Delivered in 1897, the second locomotive became M&SWJR No.16. Due principally to their small driving wheels both locomotives had a peculiar motion when running fast under load and this led to No.16 gaining the pet name 'Galloping Alice'. No.14 was sold away in 1914 but No.16 made it into GWR ownership when the M&SWJR was absorbed into the GWR at the grouping of 1923. Given the No.24, it was mainly used on pick-up goods services between Swindon and Stoke Gifford. The engine was taken out of service and disposed of in 1930.

Pre-nationalisation the LSWR shed variously housed a number of LSWR 4-4-0 classes such as the K10, L11, L12 and T9, '700'



Andover Junction was used by both Swindon and Eastleigh Works as their running-in route after construction and maintenance of locomotives. All 80 BR Standard 4MT '75XXX' lightweight 4-6-0 locomotives were constructed at Swindon to work secondary main line traffic – both goods and passenger – on practically any secondary route. Here we see No.75073 at Bournemouth West station. This locomotive was constructed at Swindon in November 1955 and was based at Eastleigh from June 1956 to April 1957. (Author's Collection)

Class 0-6-0s, M7 0-4-4Ts and also the Southern Railway U Class 2-6-0s, N15 'King Arthur' 4-6-0s and Q' Class 0-6-0s. When the Hurstbourne to Fullerton Junction line opened in 1885 the Whitchurch–Fullerton shuttle service was initially worked by a locomotive and a single carriage. In 1906 two of Dugald Drummond's H13 Class railcars, Nos.11 and 12, were assigned from new to Andover shed for use on the line to Fullerton, where at first they proved very popular. As a result, one journey each day was extended to Basingstoke, the up service operating from Andover Town via Fullerton, Longparish and Whitchurch to Basingstoke, with the return service direct over the main line to Andover Junction, with a reversal to Andover Town station. At night, the railcars were used to take signalmen, permanent way crews, staff coal and water to remote signal boxes and track works. H13 Class No.9 also saw infrequent use on the line. The railcars were economical in operation and popular, but they were difficult to keep clean and their maintenance was more demanding, requiring the whole car to be taken out of use. The novelty also wore off for passengers and by 1909 No.12 had been relocated to the Portland branch and No.11 was working the Southampton Royal Pier tramway.

Also tried on the line were the diminutive Drummond C14 Class 2-2-0Ts, with Nos.739 and 742 assigned to the service from new at the end of 1906. Some were rebuilt to 0-4-0T format. I have included in Part One a supporting photograph supplied by John Alsop of No.739 at Longparish, although the caption records the engine as a C14 0-4-0T 'Potato Can' with a claimed date of the 1909. I have been unable to confirm whether No.739 had been rebuilt by that date. Although these locomotives were intended for motor-train use, the Hurstbourne–Fullerton route was not worked this way, the locomotives operating with conventional coaching stock. The facility to detach the carriages from the locomotive reduced the complications of cleaning and maintenance. However, the locomotives had very low power and their adhesion was poor. By August 1911 No.739 had left, having been sold on to use as a shunter on an industrial site, but No.742 was still working the branch together with the earlier William Adams 'O2' Class 0-4-4T No.224. No.742 left at some point before 1916, when it was rented to the Ministry of Munitions.

Various other small locomotives were then used, generally with two carriages but occasionally only one. In March 1928 a 4-wheeled Drewry petrol railcar was tried as another low-cost measure, but this was not successful, and in 1930 it was reconstructed at Ashford before working the New Romney branch, later being sold to the Weston, Clevedon & Portishead Light Railway. In the final few years of passenger operation, most traffic was handled by Adams A12 0-4-2 tender engines of the 'Jubilee' Class, such as No.614, with the locomotive hauling just one carriage.

In British Railways days the former LSWR shed was a sub-shed of Eastleigh while the former MSWJR shed was a sub-shed of Swindon. The Andover Junction engine sheds were amalgamated in 1948 with the two sheds being combined into one. As time progressed GWR '57XX' 0-6-0PTs appeared together with BR Standard 2MT 2-6-2Ts and 4MT 4-6-0s. The T9, '700' and Q1 Classes worked the diminishing freight services from Fullerton to Longparish in the branch's latter years, with T9 4-4-0 No.30288 allocated to haul the last goods train from Longparish.

Records kept by Darrell Smith, Gerry's older brother, show that the Longparish Branch Engines in its later years were T9 Class 4-4-0s Nos.30289, 30707, 30726 and 30730 together with '700' Class 0-6-0s Nos.30306, 30350 and 30368. Darrell tells me that he used the line from Fullerton Junction to travel on the M&SWJR to Manchester to watch Manchester United play, getting there via Cheltenham Lansdown. He says "According to my notes U Class 2-6-0 No.31801 pulled us to Cheltenham Lansdown where BR Standard Class 5MT 4-6-0 No.73031 took us to Crewe and on to Manchester. We returned via Birmingham behind 'Royal Scot' 4-6-0 No.46101 to New Street. Walked to Snow Hill station and travelled to Paddington behind 'Castle' Class' 4-6-0 No.7033 *Hartlebury Castle.* Then Bakerloo Line to Waterloo and 4-6-2 No.35006 *Peninsular & Orient Line,* a 'Merchant Navy' Class Pacific, back to Andover Junction then diesel-electric multiple unit No.1103 back to Fullerton."

Darrell also recalls that Andover Junction was used by both Swindon and Eastleigh Works as their running-in route after construction and maintenance of locomotives. On this basis I can add to the list of locomotives that would have been seen on the 'Sprat & Winkle' all the '75XXX' series of BR Standard Class 4MT 4-6-0s. Although designed at Brighton, with some additional work undertaken by Derby, Doncaster and Swindon, all the '75XXX' Class of 80 lightweight 4-6-0 locomotives was constructed at Swindon to work secondary main line traffic – both goods and passenger – on practically any secondary route. The first locomotive entered traffic during May 1951. They were, in many respects, a tender version of the LMS 2-6-4 tanks built under Stanier and Fairburn but with the same smaller cylinders and higher pressure boilers of the BR Standard 4MT tanks.

Darrell Smith's records show that, in the period when he travelled from Fullerton to school in Andover, "the now famous T9 4-4-0 No.30120 used to take us most mornings… hauling Bullied three-coach set No.983. No.30120 was shedded at Eastleigh and I must have travelled behind her more than 100 times. Another regular performer was T9 4-4-0 No.30707".

Darrell recalls that, in 1957, Eastleigh used the Longparish branch for testing the Class 201, 202 and 203 diesel-electric multiple units built for the Southern Region of British Railways. The Southern Region classified these as 6S, 6L and 6B respectively, and they became known collectively as the 'Hastings Diesels' or 'Hastings Units'. They were built for service on the Hastings line which had a restricted loading gauge due to deficiencies in the building of the tunnels when the line was constructed between 1845 and 1852. The Hastings Units served from 1957 to 1988, being withdrawn when the Hastings line was electrified with single track sections through some of the tunnels. Darrell remembers particularly the very distinctive 'Thumper' sounds.

When the 'Sprat & Winkle' closed Darrell Smith bought the last ticket sold at Fullerton station, a return to Stockbridge. "I travelled on the last down train and at Stockbridge raced over the footbridge and got the last up train. Both Class 3H DMUs." Darrell says that Class 33 diesels were used when the track was being lifted. In 1956 the original MSWJR shed was demolished leaving the former LSWR shed remaining. That engine shed closed in 1962.

What remains

Andover station remains open on the line from London to Salisbury. There are two disused platforms. The first is a bay platform on the east side of Platform 2, which used to serve as the platform to Redbridge on the 'Sprat and Winkle Line' until the line was closed. The 'Sprat & Winkle' trackbed is still clearly visible, but the track itself has been removed. The second disused platform is on the other side of the island to Platform 1, which used to serve as the platform to Swindon on the Midland & South Western Junction Railway. This platform still has track, as it is still used for military purposes to link with the depot in Ludgershall. Beyond this are disused sidings.

A three-mile section of the Andover to Kimbridge line, between Fullerton Junction and Horsebridge, forms part of the Test Way – a 44-mile long-distance walking route that runs from Inkpen in West Berkshire to a point south east of Hungerford, following much of the course of the River Test to Eling where its tidal waters flow into Southampton Water.

At Fullerton there is little sign of the junction station, but the original Fullerton Bridge station building is a private dwelling. Absolutely nothing remains of Stockbridge station which was demolished in 1967 to make way for a new A30/A305 road roundabout. After suffering twenty years of neglect Horsebridge station has been attractively preserved as a wedding venue. A signal box rescued from Yalding in Kent has replaced the original. Mottisfont station building is now a private house imaginatively called The Old Station House. At Whitchurch, the platform used by Longparish trains is still visible.

Most of the track bed of the Longparish branch is still visible, although very overgrown. The site of Hurstbourne station, closed in 1964, is occupied by a scrap metal dealer, but the point where the branch left the main line can still be seen from passing trains. Longparish station master's house stands beside the decaying platform with a delightfully drunken-angled loading gauge. Although now overgrown, the site of the large concrete hard-standing area used by the Ministry of Defence for the loading and unloading of bombs and munitions can be seen from the platform. Wherwell station is in use as private residence which includes the original ticket office, waiting room and station master's house still with a trace of the former platform. Deep cuttings and lofty embankments between Wherwell and Longparish, can be seen from public footpaths that cross the line where privately-owned sections prevent access.

Origins of the nicknames

The Andover to Kimbridge line acquired the nickname of the 'Sprat & Winkle'. Two potential origins for the name have been put forward. One is that the southern part of the line ran close to the mud flats of the River Test where the winkle may be found although it is unlikely that there are sprats in that location. The second possible origin of the name may be after the seafood that was carried from Southampton to Andover.

The Longparish branch was often spoken of as the Nile Valley Railway. It is supposed the Victorians christened it thus because of the anglers who visited the area to fish the River Test which is a fine rare chalk stream and one of the best trout rivers in the UK. Another theory is that Queen Victoria referred to it as such as the view of the River Test from the railway reminded her of the River Nile.

Conclusion

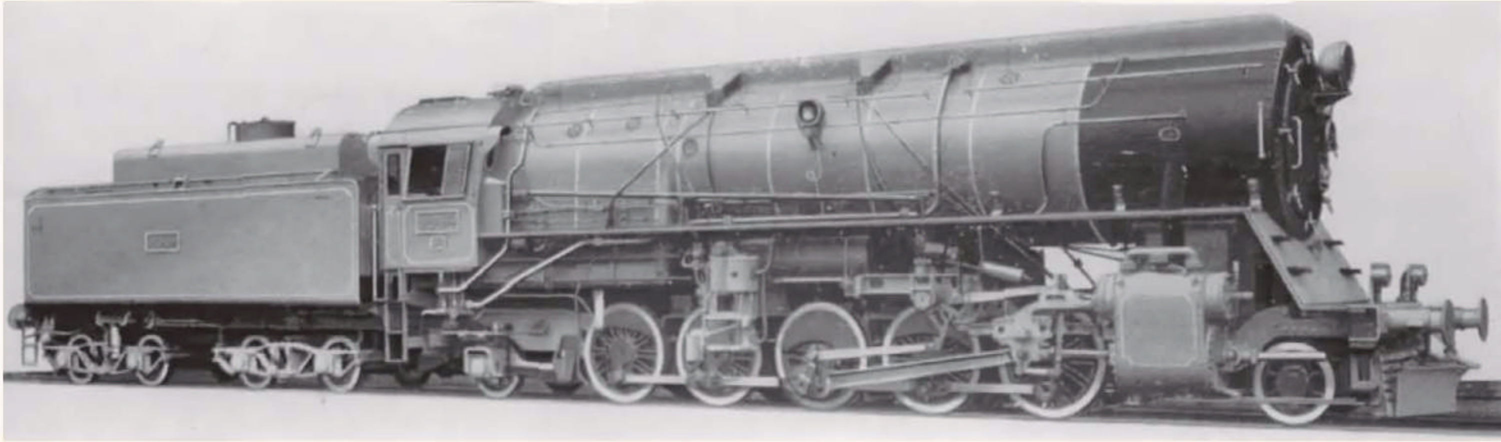
One outcome of the shenanigans involving chiefly the LSWR and the GWR was the building of the compromised Midland & South Western Junction Railway and the premature Longparish branch which never connected with the incomplete Didcot, Newbury & Southampton Railway. The traffic on the M&SWJR was never what was anticipated and, pretty as the Longparish line was, it was never going to produce enough traffic to repay the LSWR's investment in constructing it. In their different ways these lines were doomed to failure from their flawed inception.

Acknowledgements

I should like to acknowledge the help and attention of brothers Darrell and Gerry Smith. Their knowledge of the history and the location was invaluable in preparing this article and ensuring its accuracy as far as possible.

Darrell Smith records that '700' Class 'Black Motor' 0-6-0 No.30368 was a regular performer on the Longparish branch. It was also a locomotive that I have seen. A Basingstoke-based engine, it is shown here, in pristine condition, at Eastleigh shed on 12th November 1960. (Author's Collection)

30368
30368



Vulcan Foundry official portrait of one of the 64 Class 52.1 2-10-2 locomotives built during 1952-53 for the Iranian State Railway.

2-10-2s IN TROUBLE

BY PHILIP ATKINS

Now 70 years distant, the early 1950s witnessed virtually the end of commercial steam locomotive manufacture worldwide. Boosted by the arrears resulting from the Second World War, despite the almost unaccustomed luxury of full order books, it was nevertheless a very difficult period for the traditional locomotive manufacturers. This was even before several were further obliged to diversify for the first time into the production of the alternative forms of railway traction, such as rapidly came to dominate motive power requirements after, say, 1954. This high demand also coincided with long prevailing severe steel shortages, as Europe sought to rebuild itself during the immediate post-war years.

In two extreme instances matters were further compounded by a major international dispute in the Middle East, which delayed some later deliveries of a major order, and thereby payment, and elsewhere by technical issues relating to some locomotives themselves, whose full story may never be told. These particular problems beset orders that were quite coincidentally both being negotiated in 1949-50 for large, standard gauge 2-10-2 tender locomotives of new design destined for two very different countries. There were even, albeit tenuous, links between these two transactions.

Only eight years later the two largest British locomotive builders, North British in Glasgow and Beyer, Peacock in Manchester, would despatch their final steam locomotives overseas, and both would close down entirely only a few years thereafter. In 1950, however, such was the demand for steam locomotives that BP was obliged to subcontract some rigid frame orders to other British builders, and the construction even of some of its patented articulated Beyer Garratts to French and German opposite numbers. Still outstanding in early 1949, there was also a serious enquiry that it had received from the Iranian State Railway on the eve of the Second World War for 24 powerful oil-fired ten-coupled locomotives. These had accordingly been provisionally sketched out in Manchester alternatively to be 2-10-2s or 4-10-0s, having either two or three cylinders. Owing to the outbreak of war this transaction was suspended for the duration.

By then having already been delayed for a decade, the Iranian order, now resolved to be for two-cylinder 2-10-2s, was finally passed on to the Vulcan Foundry at Newton-le-Willows and further increased to no fewer than 64 units. Within just over one year the first examples were nearing completion. The additional 40 were completed first under VF works numbers 6006-6045, so that were all completed by April 1953 at a cost of £29,300 each and despatched by heavy-lift Belships from Liverpool Docks.

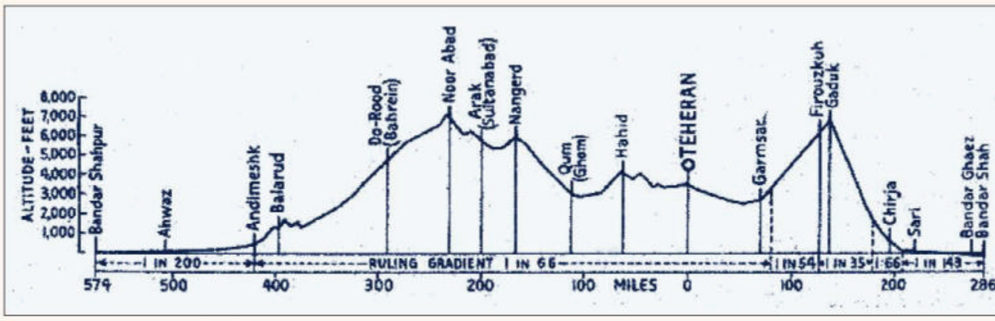
The (original) balance of 24, VF 5972-5995 was completed between April and September 1953 at the increased cost of £33,384 each. However, these could not immediately be shipped because of the major breakdown in diplomatic relations between Britain and Iran. This had arisen over the Iranian government's proposal to nationalise its largely British-owned oil industry. In order to accommodate the 2-10-2s, temporary sidings had to be laid on fortuitously undeveloped land adjacent to the Vulcan plant. The locomotives had to be moved periodically in order to prevent 'flats' developing in the roller bearings that were fitted to their front and rear pony trucks. The present-day equivalent of about £28 million could not be paid to the builder until after these locomotives had been delivered and had satisfactorily completed their stipulated trial mileage in Iran.

Fortunately, the diplomatic crisis was fairly quickly resolved in Britain's favour, although not without a strong measure of now well-documented joint covert action by the British and the Americans. In June 1954 the remaining 24 engines finally arrived at the Iranian port of Bandar Shahpur on the Persian Gulf, where they were immediately put in steam, very nearly fifteen years after the negotiations regarding these particular locomotives had first begun!

Bandar Shahpur is the southern terminus, located at the northernmost tip of the Persian Gulf, of the remarkable Trans Iranian Railway, which in 2003 was designated a UNESCO World Heritage site. It had first been mooted pre-1914, primarily by Russian interests, to link the then proposed port with Tehran and on to Bandar Shah on the Caspian Sea. Stretching for no less than 860 miles, it was eventually constructed between 1927 and 1938 with quite exceptional difficulty. It encountered extreme topographical and geological problems en route, and incorporated 360 bridges of varying size and 224 tunnels, rising to two summits of around 7,000ft, which were nearly 380 miles apart. Over one 500-mile stretch a ruling gradient of 1 in 66 prevailed, while over another 48-mile section there was a continuous gradient of 1 in 35, and the route in general experienced severe curvature in places, especially within several spiral tunnels. Temperatures encountered could range from 143°F on the plains to sub-freezing conditions in the high mountains, with heavy rain at lower altitudes, and all this with the ever-present threat of severe earthquakes! Furthermore, securing suitable water supplies for steam locomotive operation was a major problem in itself.

Taking these various acutely demanding factors into account, Beyer, Peacock & Co. had supplied four 4-8-2 + 2-8-4 Beyer Garratts in 1936. These were not repeated

Gradient profile of the 860 mile Trans Iranian Railway, Bandar Shahpur-Bandar Shah.



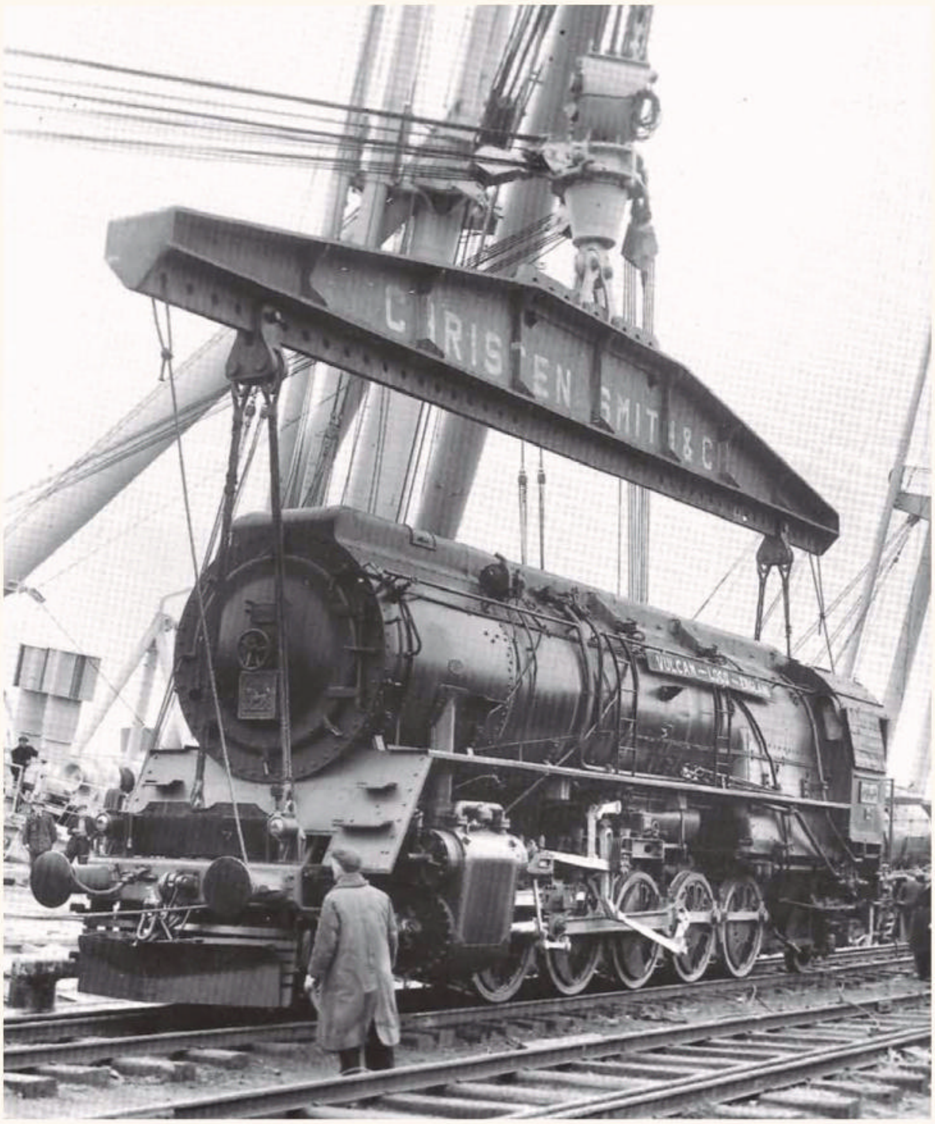
but followed by some handsome 2-10-0s from Henschel and it was soon after that that discussions began again with the Manchester builders regarding some more powerful rigid frame ten-coupled engines.

Very soon, however, replaced by American diesels, the majority of the 2-10-2s would appear to have worked for no more than about five or six years, as apparently by as early as 1961 only three of them still remained in operation. This was particularly ironic considering that it had taken thirteen years to get the engines built at a total cost that was roughly equivalent to £70 million at 2024 price levels. The one surviving example, No.52.11 (believed to have been the first of the class), today is plinthed outside the railway station at Mashhad, Iran's second largest city.

Just as it would have been concluding its major deal with Iran in the autumn of 1950, Vulcan was also preparing a bid to build twenty slightly larger 2-10-2s for Greece. Had this offer also been accepted, in view of subsequent developments it is intriguing to speculate how well these locomotives might have fared in service.

During the war the Hellenic State Railways (SEK) had suffered considerable damage inflicted by Italian armed forces. A subsequent peace treaty between the two neighbouring states was concluded in Rome in 1949, which directed that Italy should pay substantial reparations to Greece over the course of the next five years. A proportion of this was to be earmarked to fund new railway rolling stock together with some new locomotives, the latter probably to be built in Italy. In September 1950 the SEK issued an outline specification for a massive two-cylinder 2-10-2, capable of hauling 443 tons at 37.5mph on a 1 in 50 gradient over the course of the sinuous 322½-mile route between Piraeus (Athens) and Salonika. To operate at a maximum speed of 90km/hr (56mph), coupled wheel diameter was set at 1,600mm (5ft 3in), in conjunction with a coupled axle load of 20 tonnes, while total engine weight (excluding tender) was not to exceed 130 tonnes (128 tons). Notwithstanding a suggested grate area of around 5.2sq metres (56sq ft), a mechanical stoker was not insisted upon, although the provision of Kylchap exhaust was. The locomotives were to be designed in and estimated weights quoted in metric measures, with unit prices quoted in US dollars, together with anticipated earliest delivery times.

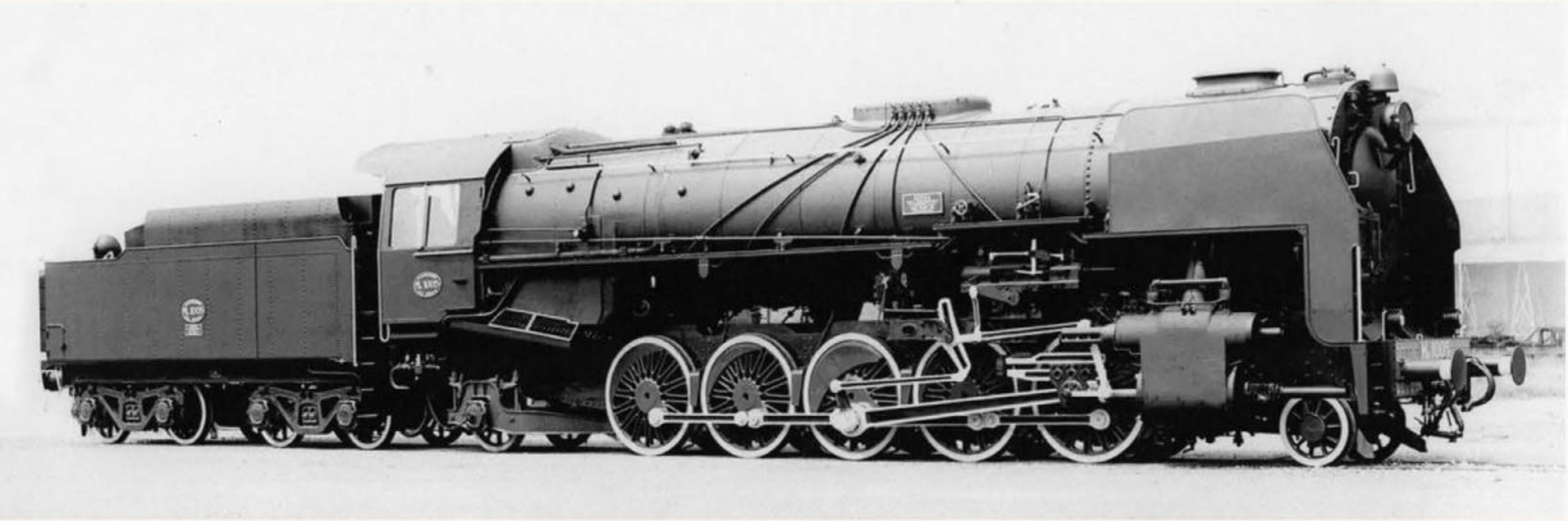
No fewer than thirteen European locomotive builders swiftly responded, ie five German, three Belgian, two French, two British and one Italian. For whatever reason, Société Alsacienne in France and North British in Glasgow, however, had both put in offers to build 2-10-0s instead. While the former was estimated to weigh a robust 112 tonnes, for its part NBL demonstrated a quite remarkable lack of enterprise given its ample resources, merely proposing to build repeats of the wartime Ministry of Supply 'Austerity' type engines. By comparison, these weighed only 80 tonnes. The SEK was already operating sixteen second-hand



Probably in late May 1954 in Liverpool Docks, one of the delayed 2-10-2s for Iran is embarked on the then brand-new 'Belship' *Belkarin* by its own on-board heavy lifting gear, a precision operation that could be achieved in only fourteen minutes. The vessel would accommodate all 24 engines and tenders on its subsequent maiden voyage of some 6,000 nautical miles, taking nearly four weeks to reach the Persian Gulf via the Suez Canal. It was recorded that after their arrival at Bandar Shahpur all 24 engines were already on dry land and in steam only the following day. In March 1978, under changed ownership and name, when carrying a very different cargo of phosphate, the former *Belkarin* sank in the northern reaches of the Gulf of Suez, as it approached the Canal, after striking a submerged wreck. (by courtesy of Ian Fisher)

Table 1. Builders' 2-10-2 proposals for SEK with cost and delivery quotations, 1950

Builder	Boiler pressure kg/cm2	Cylinders dia x stroke mm	Grate area m2	Unit cost, $US	Delivery (to begin, months)
Henschel	18	(2) 630 x 720	5.2	108,800	9m
	18	(3) 530 x 720	5.2	113,500	ditto
Krupp	16	(2) 660 x 770	5.2	106,470	16m
Krauss-Maffei	16	(3) 600 x 660	5.26	121,000	14m
				125,300 + stoker	ditto
Esslingen	20	(2) 640 x 720	4.8	105425	15m
				109955 + stoker	
Jung	16	(2) 720 x 720	5.26	107,250	16m
				112,490 + stoker	
	16	(3) 630 x 660	5.26	110700	ditto
				115,940 + stoker	
Cockerill	18	(2) 550 x 720	5.2	112,500	14m
Energie	16	(2) 610 x 700	5.3	138,330 (stoker)	12m
Haine St Pierre	20	(2) 600 x 720	5.2	130,137	13m
Anglo Franco Belge	18	(2) 640 x 720	5,2	126,300	14m
Vulcan Foundry	16	(2) 650 x 710	5.2	90,948 steel f'box	30m
				98,465 copper box	
Breda	18	(2) 680 x 750	5.6	111,400	12m



The official Breda portrait of SEK 2-10-2 No.1005.

examples of this design that had come to it via Egypt after the war.

As regards the various 2-10-2 schemes, three of the German builders offered three-cylinder schemes, two of them as alternatives to otherwise similar two cylinder designs. With the benefit of hindsight these might well have produced more satisfactory results. For the ten two-cylinder schemes submitted, all with 5ft 3in diameter coupled wheels, the wide range of the three other key dimensions which determined starting tractive effort was surprising. When also converted into imperial measure, proposed boiler working pressure varied between 227 and 284psi, cylinder diameter ranged from 21.65 to 28.3in and piston stroke from 26 up to 30.3in. Regrettably the diagrams corresponding with these various proposals would not appear to have survived. However, although the double chimney casting of the finally selected design would stand only 8in proud of the smokebox, it is nevertheless known that the boiler centre line on the two Henschel schemes would actually have been pitched some 6in higher! *(See Table on previous page)*.

Nineteen pages of neat handwritten calculations, made by an unidentified senior designer at the Vulcan Foundry and dated October 1950, have fortunately survived. These give a rare insight into the very comprehensive procedures undertaken by a locomotive builder when putting in a tender for an order, to be in compliance with the customer's stated requirements. The weight of each individual component was estimated with considerable precision and grand totalled for several alternative schemes, for example with alternative-sized boilers, with or without mechanical stokers, or feed water heaters and pumps etc. Interestingly the calculations included some direct comparisons with those that had very recently correspondingly been made with respect to the 2-10-2 engines for Iran.

Four schemes, all having bar frames, were worked out in some detail:

1. Steel firebox, no stoker, etc.......118.4 tons
2. Copper firebox, with stoker, etc.......122.2 tons (2240lb)
3. Larger boiler, steel firebox, no stoker, etc.......127.2 tons
4. Larger boiler, copper firebox, with stoker, etc.......131.2 tons

In the event Vulcan submitted quotations only for the larger boiler and no stoker, but with the option of either a steel or a copper inner firebox. The $7,500 price differential purely on the latter account is illuminating. That said, both of Vulcan's quotations were the lowest of all and were also the only ones that came below $100,000. However, with regard to its existing commitments, which at that point were being further increased by the 64 strong 2-10-2 order from Iran, the Lancashire builder could not promise delivery to commence before May 1953. Strangely, it was during that very month, then 2½ years hence, that the 'winning entry' was only officially announced, yet all twenty engines would be delivered during 1954.

Putting the construction of the 2-10-2s out to international competitive tender had been prompted by the belief that if built in Italy the engines might be unduly expensive. Nevertheless, possibly for political reasons, the leading Italian locomotive builder, Ernesto Breda in Milan, was awarded the order after all. Its execution was actually rather more complex in that Breda, while constructing thirteen of the boilers, subcontracted the assembly of ten of the engines to the ship and also rival locomotive builder Ansaldo in Genoa. A third contractor, Nuove Reggiane, in Reggio Emilia, built the remaining seven boilers and cast all twenty pairs of cylinders. The latter also constructed five tenders, of which Ansaldo also built five and Breda ten. Breda cast all the wheels, which for the coupled axles were of the Australian-devised SCOA-P type with distinctive fluted spokes. (Wheels of this type had also been offered at no additional cost by the Vulcan Foundry in its bid, with whom Breda had necessarily consulted as Vulcan was the European licencee for their production. Similar wheels, which had been cast in Letchworth, were also fitted to the Iranian 2-10-2s.) Breda works numbers were 2612-2621 for SEK Nos.1001-1010, officially dated 1953, and Ansaldo 1388-1397 (1954) for Nos.1011-1020. Whereas the Breda engines were all equipped with mechanical stokers, the Ansaldo engines were not. A detailed contemporary description of the latter batch by their builder, however, made no mention of these being oil burners as new.

Designated SEK Class Mα, the first locomotive, No.1001, was completed by Breda in early 1954, when it was found to exceed the specified weight limit by 6 tonnes. When still attired in light grey primer, it undertook mandatory test runs in Italy up the demanding and already electrified Brenner Pass route, due south of Innsbruck, and others more on the level between Milan and Verona, apparently successfully. The remaining engines were also each required to make a short road trial before their despatch to Greece, where routine proving trials took place. They were probably transported by ship from Genoa to Piraeus, although the alternative of being dragged overland through the former Yugoslavia had also been considered.

Not surprisingly given their unusual size, the new Greek 2-10-2s attracted some attention in the contemporary railway press. In addition to a technical description in *The Railway Gazette* dated 21st January 1955, the editorial in the same issue remarked "these engines might well be considered to be the largest non-articulated locomotives in Europe, and, they have modern equipment carried almost to extremes when one considers the general conditions of working. Yet plain axle boxes are used throughout... The cab contains a complex array of controls and instruments, which need a well-trained, well-disciplined, and scientifically-minded driver to get the best out of them".

Three years later when writing in *The Locomotive* magazine for July 1958, the noted locomotive photographer and commentator Patrick Ransome-Wallis wrote "it is interesting to speculate on the need of the Greek railways for such an enormous machine as the Mα 2-10-2. The mountainous main line has a ruling gradient of 1 in 50, yet distances are neither so great, nor is the country more difficult than that in which the Turkish Railways operate... Based on a well tried German design the Turkish 2-10-0s have for twenty years proved themselves to be more than masters of their job... With such a successful 2-10-0 design of comparable power in a neighbouring country the reason for the Mα 2-10-2 is difficult to understand". (By comparison the said 2-10-0s weighed in at a modest 104 tons with an axle load of 18 tons and had a grate area of only 43sq ft.)

This short article also revealed, possibly publicly for the first time, the serious boiler problems that these still new locomotives had very quickly experienced. In fact there had been other major problems in Greece almost from day one. The mechanical stokers fitted to the Breda engines proved to be so unreliable that they were quickly removed and two or sometimes three firemen needed to be carried. Notwithstanding the double Kylchap exhaust, steaming was poor and the intended design maximum of 2,900ihp was not achieved. There was criticism of the 'small' firebox, but Breda's 5.6sq metre grate had been the largest of any on the submitted proposals, having amounted to only 4.8sq metres on that from Esslingen.

The long coupled wheelbase of almost 23ft reacted catastrophically with the track, which was probably not up to the required specification that had been anticipated, particularly as regards minimum curvature, when the locomotives had been ordered. This was also despite the fact that the leading coupled axle was conjoined with the front pony truck to form a Krauss-Helmholtz truck and the centre coupled wheel tyres were flangeless. The track also suffered from the dynamic impact of the balancing of the heavy machinery associated with only two such large cylinders, which must have been anticipated by several of the German manufacturers when they gratuitously also offered equivalent three-cylinder designs. Not only did the track become very badly distorted, but consequent stresses were also set up in the locomotives' frames, which had been cut from inferior quality 1½in thick steel plate derived from scrap, and transmitted through to the large diameter (c7½ft maximum) boiler where it rested on the frames near the front of the firebox. This triggered the development of dangerous cracks in the copper inner firebox throat plates. The boilers may also have used poor quality steel in view of the widespread shortage of this material.

The original builders declined to undertake any remedial work. Only a few years later Ansaldo (which had not actually built any of the boilers) reputedly declared that it had never built any steam locomotives at all, despite having also built 25 WG 2-8-2s for India even more recently in 1956. It would appear, however, that Breda negotiated with Henschel to try and resolve this matter. It remains unclear to this day whether the exceptionally large boilers, which were dealt with in Germany in some manner during 1957/58, were either simply repaired there, rebuilt in some way, or in fact completely replaced. On their return to Greece these indeed now carried works plates bearing Henschel 1957 serial numbers 29756-75. The 2-10-2s were also now equipped with small Witte-type smoke deflectors and they were for the most part, but not entirely at this stage, converted to oil firing. Most photographs of these locomotives show them in this later condition.

By 1959, when all the 2-10-2s were back in service, the track had been improved, but their renewed primacy was short lived as the first diesel locomotives arrived in Greece from the USA in 1961. Nevertheless, the former rather strangely ranked amongst the very last steam locomotives ever to be pictured in the annually published *Jane's World Railways*. A few of the 2-10-2s operated in the Athens area until early 1974, but in 1980 all twenty were noted dumped at various locations en route between Athens and Salonika. They were not finally cut up until 1985/86, except for No.1002, which is currently preserved at Athens Rouf station, and No.1013 which is believed still to exist intact at Salonika.

Iranian and Greek 2-10-2s on film

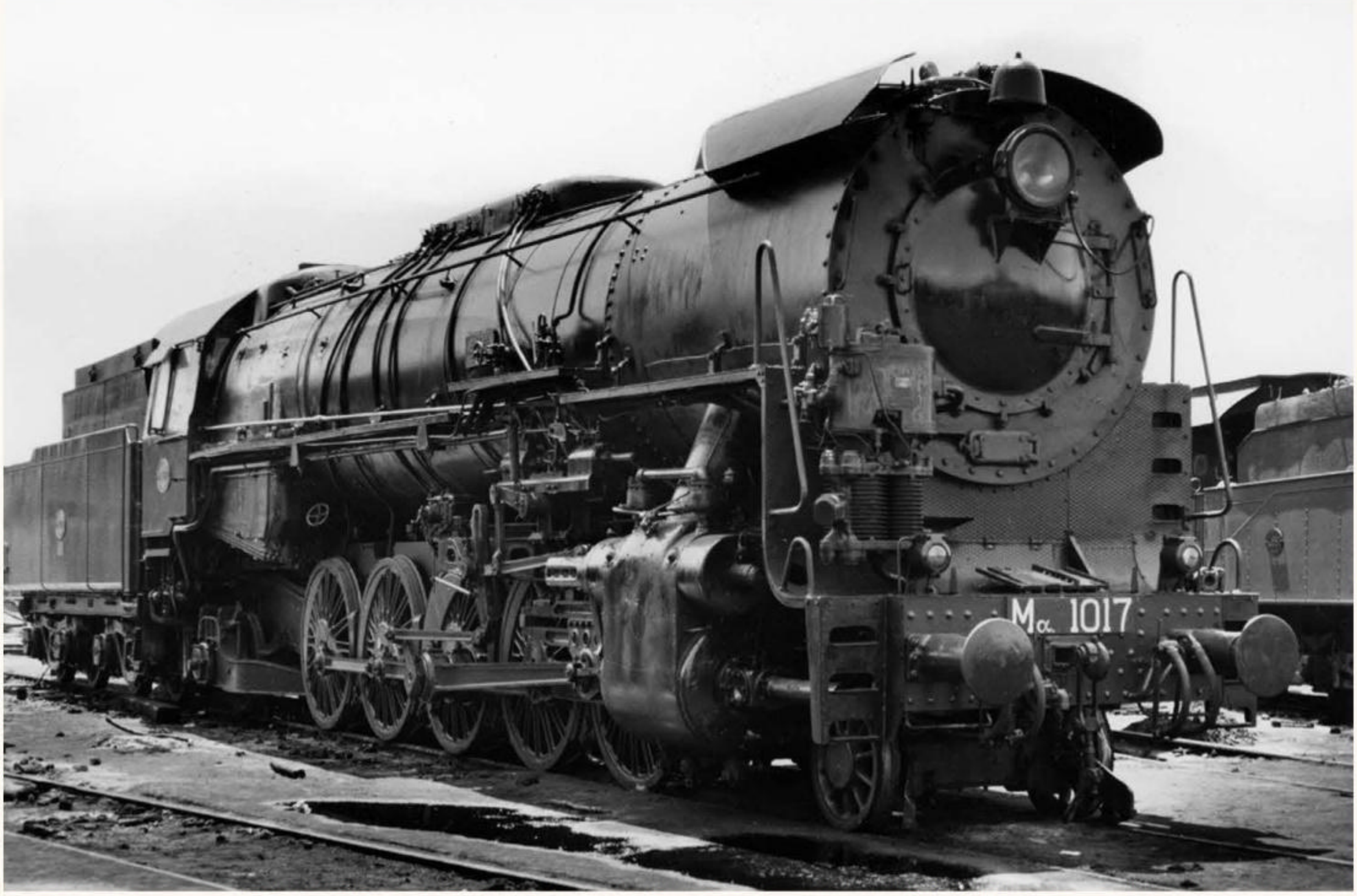
Contemporary monochrome film showing sequences of the construction of both 2-10-2 classes can currently be accessed on You Tube:

Portrait of an Engineer (Vulcan Foundry) 19min. (also to be found under Vulcan Foundry, Vols.1 & 2).

La 'Breda' vista nella produzione di una moderna locomotive a vapore. 14 min.

For several years there was also an excellent Greek website which consisted of a compilation of sequences from Greek feature films in which the SEK 2-10-2s made an impressive incidental appearance. Unfortunately, this would appear to have been taken down recently.

The writer is indebted to Yiannis Zartaloodes in Athens for providing details of the bids from the different locomotive builders regarding the SEK Mα class.



SEK 2-10-2 No.1017 in later condition; the Mα class looked more impressive as originally built. (Author's Collection)

TUNNELS IN THE CHUR

BY MIKE G. FELL OBE

This is Solomon Tredwell (1821-1859) who, together with his elder brother John, were contractors for the Churnet Valley line from North Rode to Uttoxeter. Solomon and his wife Alice occupied Highfield House at Leekfrith and became very popular figures within the local community. Later, when Solomon died prematurely shortly after his arrival in India, his wife took over responsibility for the Bhor Ghat section of the Great Indian Peninsular Railway, the contract for which he had just secured. (Grace's Guide)

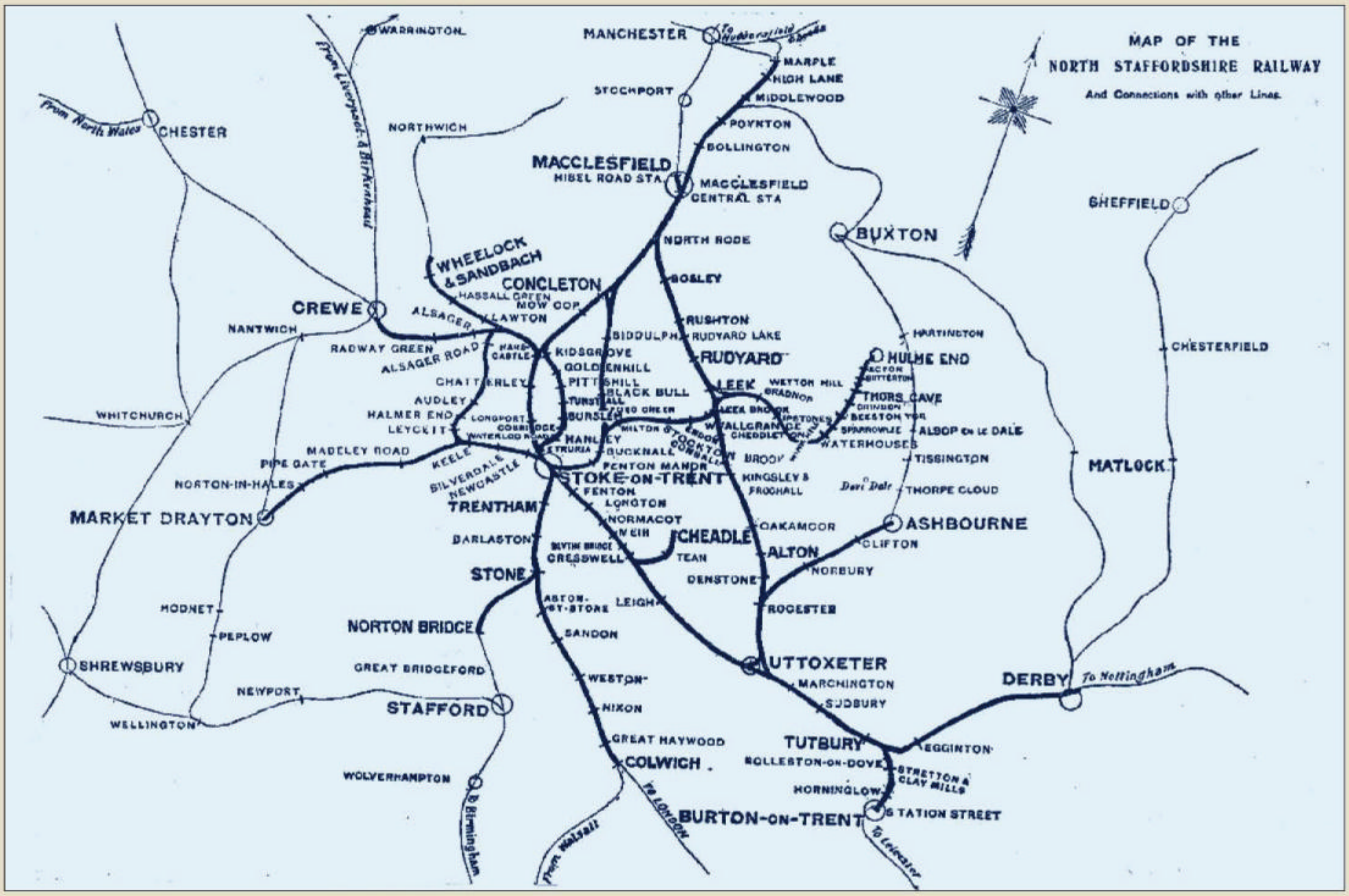
The Churnet Valley line

The Churnet Valley line of the North Staffordshire Railway (NSR) was authorised in 1846.[1] The railway left the NSR's main Pottery Line at North Rode and ran along the Churnet Valley via Leek to Uttoxeter. It then carried on via Marston Junction to reach the Midland Railway at Burton-on-Trent and also at Derby via Willington Junction. The Act also authorised a branch from Uttoxeter to Stoke-on-Trent. The first section of line to open was that from Uttoxeter to Burton-on-Trent on 11th September 1848, the remainder of the line opening on 13th July 1849, including the link from Marston Junction to Willington Junction allowing access into Derby station.

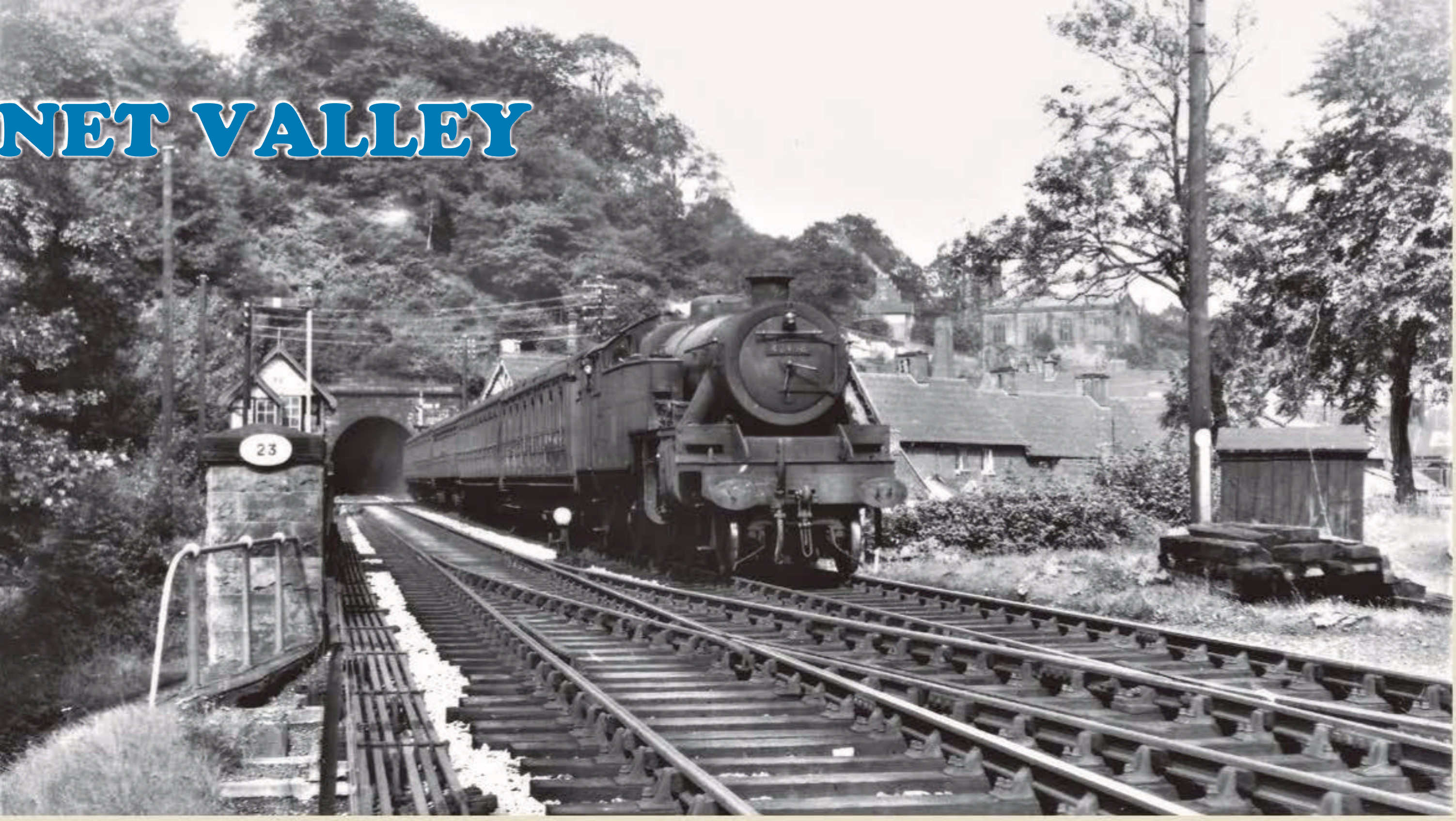
The Churnet Valley line was originally thought of as a strategic link from Macclesfield to Derby but it did not work out that way. The NSR's key routes quickly became the line from Macclesfield through Stoke-on-Trent to link with the London & North Western Railway (LNWR) at Norton Bridge and Colwich and, secondly, its line from Crewe via Stoke-on-Trent and Uttoxeter to Derby. The latter opened from Stoke to Uttoxeter on 7th August 1848 and from Stoke to Crewe on 9th October that year. Once the line through the Churnet Valley was opened trains did indeed run direct to Derby with a change at Tutbury for passengers travelling to Burton-on-Trent but once the NSR had established its main route from Crewe to Derby, passengers from Churnet Valley stations had to change at Uttoxeter Junction station. In 1864, there were still five passenger trains a day running direct from Macclesfield to Derby via the Churnet Valley on weekdays with two on Sundays, with a similar pattern in the opposite direction.[2] However, by 1879 passengers from Churnet Valley stations had to change at Uttoxeter.[3]

The railway through the Churnet Valley had become something of a backwater. However, there was one important exception to the tranquil atmosphere surrounding the local passenger and goods trains. The LNWR, with its extensive running powers over NSR lines, began to develop the route for through freight traffic from Lancashire and West Yorkshire to London. It was almost a secret as the trains were nocturnal in character running during the small hours and only known to railwaymen and those living in close proximity to the line who got used to the trains rattling by through the night. The practice was continued by the London Midland & Scottish Railway (LMS) and by British Railways into the early 1960s.[4]

This map of the North Staffordshire Railway was published in 1908. It shows the Churnet Valley line running from North Rode in the north through the valley to Uttoxeter. It also shows the NSR's onward connections to Burton-on-Trent and Derby. The NSR's favoured route to Derby was from Crewe via Stoke-on-Trent. The tunnels through the Churnet Valley were to the north of Oakamoor and Cheddleton stations, between Leek Brook and Leek and to the north of Leek station. (Mike G. Fell Collection)


MAP OF THE
NORTH STAFFORDSHIRE RAILWAY
And Connections with other Lines.
WARRINGTON
From Liverpool & Birkenhead
MANCHESTER
To Huddersfield & Leeds
MARPLE
HIGH LANE
MIDDLEWOOD
STOCKPORT
From North Wales
CHESTER
NORTHWICH
POYNTON
BOLLINGTON
MACCLESFIELD HIBEL ROAD STA.
MACCLESFIELD CENTRAL STA
SHEFFIELD
BUXTON
NORTH RODE
WHEELOCK & SANDBACH
CONGLETON
BOSLEY
HASSALL GREEN
MOW COP
CREWE
ALSAGER
LAWTON
NANTWICH
RUSHTON
RUDYARD LAKE
BIDDULPH
HARTINGTON
RADWAY GREEN
ALSAGER ROAD
HARECASTLE
KIDSGROVE
GOLDENHILL
PITTSHILL
RUDYARD
HULME END
CHESTERFIELD
CHATTERLEY
BLACK BULL
LEEK
WETTON MILL
BUTTERTON
THORS CAVE
AUDLEY
WHITCHURCH
HALMER END
LEYCETT
LONGPORT
TUNSTALL
BURSLEM
FORD GREEN
BRADNOP
LEEK BROOK
WALLGRANGE
CHEDDLETON
IPSTONES
BEESTON TOR
SPARROWLEE
ALSOP en le DALE
WATERHOUSES
MADELEY ROAD
COBRIDGE
WATERLOO ROAD
ETRURIA
MILTON
STOCKTON BROOK
ENDON
CONSALL
BUCKNALL
HANLEY
TISSINGTON
MATLOCK
PIPE GATE
KEELE
SILVERDALE
NEWCASTLE
PENTON MANOR
STOKE-ON-TRENT
KINGSLEY & FROGHALL
Dove Dale
THORPE CLOUD
NORTON-IN-HALES
FENTON
LONGTON
NORMACOT
MEIR
TRENTHAM
MARKET DRAYTON
OAKAMOOR
ASHBOURNE
CLIFTON
BARLASTON
BLYTHE BRIDGE
CRESSWELL
CHEADLE
TEAN
ALTON
NORBURY
STONE
DENSTONE
HODNET
ASTON-BY-STONE
LEIGH
ROCESTER
PEPLOW
NORTON BRIDGE
SANDON
SHREWSBURY
GREAT BRIDGEFORD
UTTOXETER
MARCHINGTON
SUDBURY
DERBY
To Nottingham
WESTON
NEWPORT
STAFFORD
HIXON
WELLINGTON
GREAT HAYWOOD
TUTBURY
EGGINTON
COLWICH
ROLLESTON-ON-DOVE
STRETTON & CLAY MILLS
WOLVERHAMPTON
HORNINGLOW
To Birmingham
BURTON-ON-TRENT
STATION STREET
To London
To Leicester
From Walsall

NET VALLEY



LMS Stanier Class 4MT 2-6-4T No.42458 emerges from Oakamoor Tunnel with a passenger train bound for Uttoxeter. The locomotive was built for the LMS at Derby in September 1936 and withdrawn in October 1963. This photograph was taken on 11th September 1954. (Industrial Railway Society)

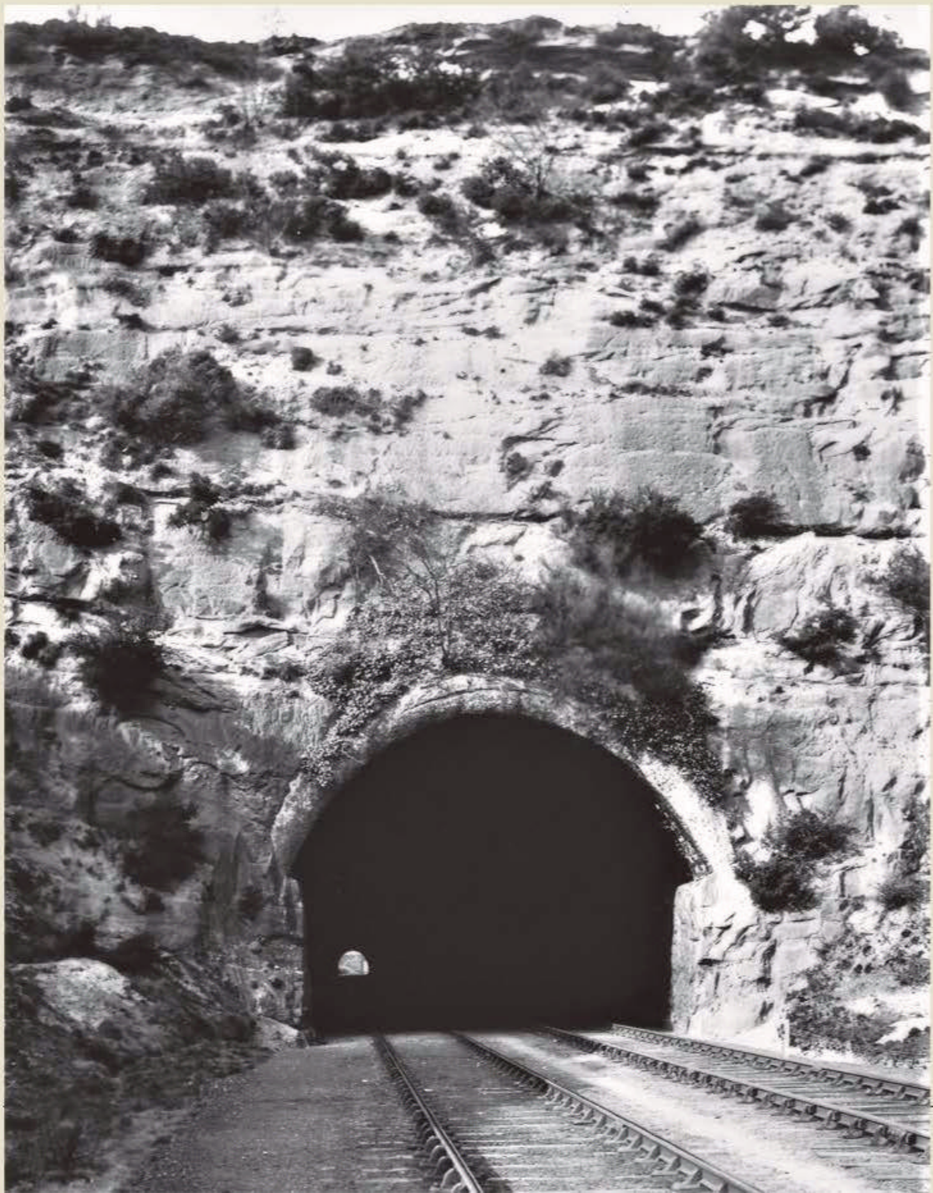
The contractors

Solomon Tredwell (1821-1859) and his brother John Tredwell (1805-1875) were the appointed contractors for the Churnet Valley line from Uttoxeter to North Rode, a distance of 28 miles. There were four tunnels on the line at Oakamoor (497 yards), Cheddleton (532 yards), Birchall (69 yards) and Leek (472 yards).[5] A report from the NSR's Engineer, George Parker Bidder (1806-1878) dated 13th January 1848 to the directors, mentioned that the Tredwell contract can scarcely be considered to have fairly got in to work, excepting the Leek and Oakamoor Tunnels and at some of the excavations; 150,000 cubic yards of excavation had been removed. As it turned out, the Tredwells had to request an extension of time of three months to complete their work. The extension was granted.[6]

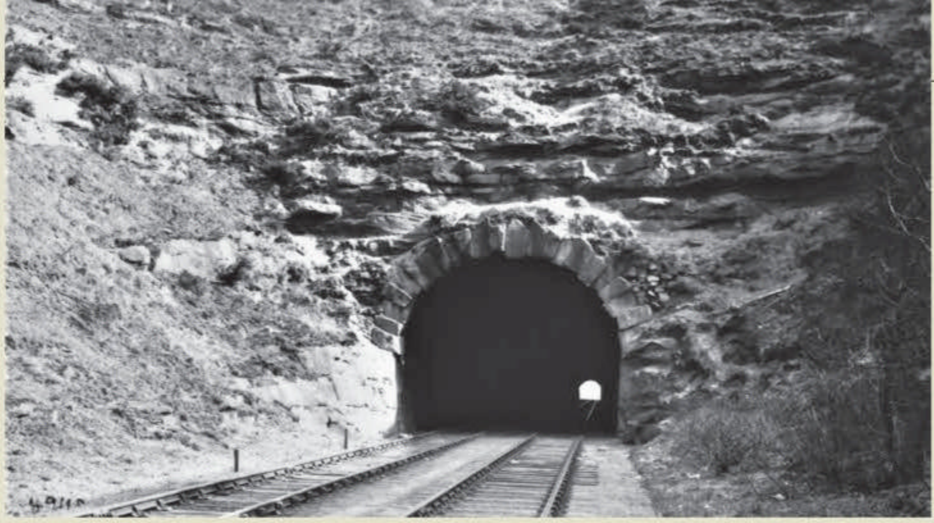
The tunnels

A report in *The Staffordshire Advertiser* for 14th July 1849 featured the opening of the line and described a journey from Uttoxeter to North Rode; the following extracts from the newspaper describe the four tunnels. Starting with Oakamoor, the reporter undertaking the journey said "the line enters a tunnel of 490 yards through the steep hill up which the Cheadle road climbs. This tunnel is an exception to the general rule of pursuing a straight course in such works, for it is slightly curved. Its formation was attended with some difficulty from the heavy nature and peculiar quality of the ground (the coal strata) and the quantity of water which incessantly poured in. The architectural appearance of the entrances is bold and majestic and the tunnel is lined throughout with brickwork of considerable thickness". Railway enthusiast, James William Walker (1878-1964), born at Oakamoor, once claimed that a local remedy for whooping cough was to take children inside Oakamoor Tunnel after the passing of a train! The line through the tunnel was on a gradient of 1 in 234 rising towards Leek. The brickwork in the tunnel was relined in 1898 at a cost of £300.[7]

Back in 1849, the newspaper reporter on entering Cheddleton Tunnel said that it



This is the south end of Cheddleton Tunnel looking towards Leek. (Mike G. Fell Collection)



Leek Tunnel, 472 yards, was just to the north of Leek station; this is the south portal. "The tunnel has been cut through the sand-stone rock. It is arched with brick, and has in some places brick side walls. The face of the entrances is the natural rock, which is to be covered with shrubs and creeping plants" – so said *The Staffordshire Advertiser* in its edition for 14th July 1849. (Mike G. Fell Collection)

pierced the red sandstone for 500 yards, at a depth of 48 yards from the summit of the hill. He recorded that there was no masonry at either entrance to the tunnel, which, therefore, resembled a natural cavern in the rock. He added that it was proposed to heighten that illusion by covering the rock with plants indigenous to the neighbourhood. This must have been a very early instance of concern for the environment. The line through the tunnel rose on a gradient of 1 in 364 towards Leek. Cheddleton Tunnel, albeit with only a single line of rails, is now used by the preserved Churnet Valley Railway.

This is what our newspaper reporter had to say about the continuation of his journey towards Leek in July 1849. "A very short distance brings us to the conical hills which have so singular an appearance in the neighbourhood of Leek. One of these not far from the Pottery Water Works at Wall Grange is penetrated by a short tunnel of 70 yards, which is called 'The Cone Tunnel'. The entrances are faced with brick, with stone cornices, etc. This tunnel is on the estate of the late John Davenport, Esq. On leaving it there is a good view of the Westwood Estate, and also of the town of Leek, at the distance of little more than half a mile." The 'Cone Tunnel' was a reference to Birchall Tunnel. John Davenport (1765-1848), born in Leek, was a famous pottery manufacturer and Member of Parliament for Stoke-on-Trent from 1832 to 1841. He purchased Westwood Hall in 1813.

This is what our man had to say after leaving Leek: "Here the valley of the Churnet is left by the railway, which enters a tunnel of 470 yards long, beneath the hill on the west side of the town. Like the one at Cheddleton, the tunnel has been cut through the sand-stone rock. It is arched with brick, and has in some places brick side walls. The face of the entrances is the natural rock, which is to be covered with shrubs and creeping plants."

The line through Leek tunnel was virtually level. It had a rather charismatic beginning when the first brick was laid inside the tunnel on 16th November 1847 by John Cruso (1789-1867), a leading inhabitant of the town of Leek who practised as a solicitor and an agent for the landed gentry. Those attending the brick laying ceremony had to descend a shaft which was about 40 feet in depth. Contractor Solomon Tredwell had provided suitable accommodation at the bottom of the shaft for the brick laying ceremony and some excellent champagne for the guests! After John Cruso had laid the first brick, the other guests each laid a brick in succession.[8]

At the half-yearly meeting of NSR shareholders held on 6th August 1880, attention was drawn to a report by the NSR Engineer, William Henry Stubbs (1847-1890) which, *inter alia,* noted that two tunnels near Leek had been thoroughly lined with blue bricks leaving the whole of the tunnels on the line in good order. I very much suspect that the two tunnels concerned were those at Leek and Cheddleton.

Nowadays

Things are rather different nowadays! Leek Tunnel ceased to be used by trains with effect from 15th June 1964 and the same fate befell Oakamoor Tunnel on 4th January 1965. However, things have turned out rather differently for Cheddleton Tunnel. Following closure of the line to ordinary passenger traffic on 4th January 1965, the tunnel continued to be traversed by freight trains from the sand quarry operated by British Industrial Sand Limited at Moneystone, to the north of Oakamoor. The last such train ran on 30th August 1988 but even then the tunnel continued to be used by a number of passenger excursion trains organised by tour operators which did not cease until 1994. Two years later, the Churnet Valley Heritage Railway operated its first train from Cheddleton through the tunnel to Leek Brook Junction. Its operations were later extended southwards to a rebuilt Kingsley & Froghall station and currently the heritage line from Leek Brook Junction is being relaid from that point through Birchall Tunnel to a new station at Leek.

A vision

To the north of the closed Leek tunnel, a successful 10¼ inch gauge miniature railway has been established on the bed of the Churnet Valley line alongside Rudyard Lake, which is a very popular tourist destination. Just to the south of Oakamoor is the now preserved Grade II listed station and station master's house at Alton, with close access to the famous Alton Towers Theme Park. Maybe one day the Rudyard Lake Miniature Railway can pick its way south through Leek Tunnel to terminate alongside the new Leek station – what an exciting interchange that would be! Possibly likelier is a further extension of the Churnet Valley line southwards through Oakamoor tunnel to Alton where some lucky travellers could stay at the preserved station which is now managed by the Landmark Trust as holiday accommodation. Perhaps just a pipe dream – but one never knows.

References

1. The North Staffordshire Railway (Churnet Valley Line) Act 1846, 9-10 Vic. ch. lxxxvi, Royal Assent 26th June 1846.
2. NSR Time Table of Passenger and Goods Trains, April 1864.
3. NSR Working Time Table, November 1879.
4. *Railways & Canals in the Churnet Valley: Consall Past and Present* by The Knotty Ramblers, Railway & Canal Historical Society 2022. ISBN 978-0-901461-73-5.
5. The tunnel lengths are taken from the official LMS Bridge Book. They differ slightly from those quoted in the contemporary newspaper report of the opening of the line.
6. National Archives RAIL 532/4, NSR Board Meeting, 11th May 1848.
7. National Archives RAIL 532/21. NSR Traffic & Finance Committee, 15th March 1898, Minute 18464.
8. *Staffordshire Advertiser,* 20th November 1847.

The preserved station at Alton which is crying out for its track to be relaid and its future passengers! (Mike G. Fell Collection)

Readers' Forum

Letters intended for publication should ideally add extra detail to our articles (or offer corrections of course!) and not be too long, consistent with the detail they offer. As always, we are sorry that space and time prevent us from printing them all or sending personal replies. ED.

Gretton: a Rural Northamptonshire Station

For a brief period Gretton (Peter Butler's article, November) could claim to be the smallest settlement having terminating and originating London trains. A few of the St. Pancras to Bedford diesel multiple unit workings introduced in January 1960 later ran through to Kettering or Leicester. Exceptionally, in 1961 the 2.35pm from St. Pancras on Mondays to Fridays was extended to Gretton, probably for home-going school pupils. The 4.37pm return from Gretton ran through to St. Pancras. These workings had disappeared by summer 1963.

Stephen G. Abbott, Skipton

I was delighted to read in Peter Butler's piece on Gretton station that the building not only still stands but has been well restored by its present owner, as Mr. Butler's photograph amply demonstrates. He mentions the Bishop of Peterborough, who had created the Railway Mission to serve the navvies building the Kettering–Manton railway. No doubt space was limited so may I take this opportunity to expand a little on the bishop's connection with the line? The bishop was William Connor Magee, a nationally renowned orator whether in church or in the House of Lords, who was Bishop of Peterborough for 22 years. In October 1877 he made a thorough visitation to the line, with a very full programme as he intended to visit every one of the navvies' chapels and take services in them. On the Sunday morning he preached at Wing, in the afternoon Seaton and in the evening at Glaston, all navvy settlements in villages adjacent to the line. The services were crowded, with large numbers of working men present, and the well-known hymns were sung with 'great fervour'. Then on the Monday he made a tour of inspection of the works in a special train of open trucks. He insisted on going into one of the tunnels to see the navvies at work; throughout "many a rough hand grasped his with the feeling that he was their friend" (quotations from the local paper a few days later). Widely admired and respected, Bishop Magee certainly deserved his navvies' epithet 'The Navvies Bishop'.

Robin Leleux, Ilkley

The Midland Grand Hotel at St. Pancras

May I add to Peter Butler's account of his visits to St. Pancras Hotel, or 'Chambers' as BR called it. When he was judging it for the NRHA in 1995, I was the Organising Judge at that time and knew Mr. Butler would not only welcome going but would do a thorough job. As was the norm then, and indeed is still, all entries would be judged twice; I followed up his visit with my own judging visit. Unlike him I did not get onto the roof (that had happened several years earlier) but I did get behind the great clock. St Pancras Chambers exterior and its Grand Staircase deservedly won the special Peter Manisty Award for Excellence that year. (The late Capt. Peter Manisty had from the outset encouraged the setting up of the Awards as Chairman of the Association of Railway Preservation Societies, now the Heritage Railway Association.)

Peter Butler laments the disappearance of the chimney pots by the time of his judging visit. These were certainly in place at the earlier visit which he had organised for the LCGB Bedford Branch back in 1978, through the good offices of Mr. J. C. Rodgers, then senior in BR and a good friend of the organisation. He took us down into the basement, where BR kept and ground its coffee for its restaurant cars – a rich aroma pervaded the place – and up on to the roof. Not only were the pots all in place but each had a small numbered plate alongside denoting which room they served. Two very memorable visits which, as Peter Butler observes, would not come our way again.

Robin Leleux, Ilkley

The BR Class 02 Diesel Shunters – Nemesis of the LYR 'Pugs'

In the author's interesting article on these locomotives (November issue), he mentions that the Yorkshire Engine Company was a small independent locomotive manufacturer. Small it certainly was, but independent at the time he writes, less so, as since 1945 it had been a wholly owned subsidiary of the United Steel Companies Limited, which is why so many of its locomotives found their way to that company's operations.

Allan C. Baker, by email

The amazing story of 'Pug' No.51218, p688. Considering BR Western Region was determined to eliminate steam power, in June 1963 it put a 'Pug' through Horwich Works. It needed a shunt locomotive to work the Swansea South Dock Fish Market sidings. Various locomotives had been tried there but were unsuccessful. So No.51218 was extracted from store at Duffryn Yard MPD and taken in a freight train to Horwich. It was observed travelling north through Craven Arms on 8th May 1963 tucked in behind 'Hall' Class No.4946. After Works attention it was sent to Bolton MPD and Bury MPD. Unfortunately, there were problems with its trailing wheelset which had to be sent back to Horwich Works for further attention. It was finally released from there on 19th August to make the long journey to Swansea. Sadly, it ran hot at Stockport and Shrewsbury presumably as the freight trains it was included travelled too fast. It eventually reached Knighton in late August where it caused a sensation when stabled in the cattle dock sidings. Never having seen a 'Pug' before, some of the locals clambered all over it (Ref. HOWLTA magazine No.40). Presumably it was towed to South Wales in a local freight train but it could have gone under its own steam. What a photograph it would have made if it was seen steaming up Sugar Loaf! The RCTS *Railway Observer* recorded that it did reach Swansea East Dock MPD and was observed working on 15th/16th October 1963. When Swansea East Dock MPD closed on 13th June 1964, No.51218 was sent to Neath MPD and observed there on 6th September. Its only known duties at Neath were taking BR wage packets to the local steelworks. Withdrawal came on 30th September and No.51218 was stored till November and then taken for preservation to the KWVR by the L&Y Saddle Tanks Fund. To save the long journey over the Central Wales Line it was taken by road on a low-loader.

I have often wondered how far a 'Pug' could travel under its own power. In the mid 1950s No.51221 was coal stage pilot at Bangor MPD, North Wales. During that time it was hired out to the CEGB Bromborough (Wirral) Power Station as its locomotive had broken down. A group of us was trainspotting one summer evening at Port Sunlight station when No.51221 suddenly appeared. If only we had a camera! It reversed on to Lever Brothers' private railway to make its way to Bromborough. As it turned up on its own, one presumes it travelled the 70-plus miles the same way. Interestingly, one wondered did Lever Bros. and CEGB crews work the locomotive whilst it was there.

Chris Magner, by email

Time travellers from 'Bay Town'

I enjoyed your article with the above title (November). Minor stations were sometimes cited in ticket routeing to make the prescribed route unambiguous. Thus 'via Wem' required the passenger to travel from Crewe to Shrewsbury direct, with no option to go, for example, via Chester and Wrexham which would necessitate a different apportioning of the fare. I have a ticket from Peterborough to Ipswich 'via Soham', issued three years after that station closed first time round, so not allowing travel via Cambridge.

Minor routeing points could also confer flexibility – tickets from Midland main line stations to northern England were often routed 'via Trent' thus allowing travel direct via the Erewash Valley line, via Derby, or via Nottingham. Some tickets from the Midlands to Norwich and beyond were routed 'via Shippea Hill' (the first station east of Ely), thus allowing travel by direct trains via Ely North Curve or by a reversal or change of train at Ely station, at the same time precluding travel via King's Lynn.

Stephen G. Abbott, Skipton

The Brighton's other main line to London

Jeremy Clarke (November) gives an interesting account of the development of the LBSCR's line from Victoria. However, his summary of present-day services does not list any Victoria to Brighton trains! The half-hourly non-stop Victoria to Gatwick Airport trains actually run on to Brighton calling only at Haywards Heath; overall journey times of 58min (down) and 62min (up) maintain the tradition of 'London to Brighton in [about] an hour'.

Since June 2024 the trains which divide at Horsham no longer serve Southampton on alternate half hours. The front portions (leaving Victoria) of all trains now run to Portsmouth Harbour, non-stop from Horsham to Barnham, the rear portions to Bognor Regis calling at all stations.

The wording suggests that semi-fast trains to Victoria start at Coulsdon South, these trains originate at Reigate.

Stephen G. Abbott, Skipton

Congratulations on yet another most interesting and entertaining issue. I hope you won't mind a very minor correction to one of the photograph captions accompanying the article 'The Brighton's Other Main Line to London'. On p652 the top photograph shows a tramcar outside Thornton Heath station on what is identified as the later London Transport Route 40. In fact this route became LT Route 42 and closed, as stated, on 7th April 1951. (Tram Route 40 actually operated between The Embankment and Plumstead, Wickham Lane.(

Roger A. Smith, by email

The Skye line

Looking through October's issue of Backtrack, I was interested to read Arnold Tortorella's letter concerning the Garve to Ullapool railway proposal of 1945. Interested, because my own book *A Quite Impossible Proposal* (Birlinn 2020) analyses the several schemes – inclusive of the 1945 one – to construct that very railway. Some readers may also be familiar with an article by Jack Kernahan from 2014 (*Highland Railway Society Journal*, issue 108), which briefly covers two wartime proposals for the Ullapool line, in 1918 and 1945.

Commander Vyner's 1945 proposal to the unimpressed board of the LMS was the fifth in a series. As readers must be aware, the first such scheme was promoted by the family of Sir John Fowler in 1890 and foundered largely on the incompetence and myopia of the Scottish Office, which branded any such proposal as 'quite impossible'. The second was the very same scheme re-packaged and submitted under the provisions of the Light Railways Act of 1896; it promptly fell foul of the devious obstructionism of the Highland Railway Company. Then came a truly 'pie in the sky' suggestion – to borrow John Thomas' slightly ill-chosen words – from the husband of the Countess of Cromartie in 1901; the line would go to Ullapool and beyond; but was a mere tramway. 1918 saw another Fowler scion, Sir Montague, championing a proposal which came within a whisker of being approved by the Government – and then vanished in a puff of smoke when said Government found more pressing things to attend to after the war. And in 1945, along came Vyner, only to be brushed off by the LMS. Who will be next?

Andy Drummond, Edinburgh

BookReviews

|★★★★★ Excellent|★★★★ Very Good|★★★ Good|★★ Fair|★ Poor|

The last years of Lancashire steam

By Peter Tuffrey. Published by Great Northern Books. ISBN 978-1-914227-66-0. 160pp hardback. £22.50.

The glorious years of the GWR

By Peter Tuffrey. Published by Great Northern Books, ISBN 978-1-914227-74-5. 160pp hardback. £27.50.

Pictorial albums continue to proliferate but quality ones are always welcome. I suppose then that it depends on whether they cover subject matter or parts of the country of especial interest.

As a Lancastrian, *Lancashire Steam* particularly appealed to me. The locations features (in colour as well as mono) are dealt with in salphabetical order, from Accrington to Wigan, and while the expected traffic centres are well represented, there are plenty of places much less known and indeed many which might not have been expected at all! Thus we find Bacup, Bickershaw & Abram, Bryn, Chequerbent, Waterloo Goods and Riverside stations in Liverpool, Oldham – Clegg Street, Werneth and Glodwick Road, Rawtenstall, Tyldesley, Speke Junction, Westhoughton... to pick out just a few.

Motive power takes in pretty well everything to be found in the county from LMS Pacifics down to LYR 'Pugs', with a few unusual subjects such as an LNER A1 Pacific at Blackpool Central and the engines of the Mersey Docks & Harbour Board via the sizeable LNER Worsborough banker Garratt U1 Class beast in Gorton Works.

The GWR book is much more wide-ranging, though all illustrations in this case are in monochrome. It starts in the broad gauge era and its locomotive coverage lacks for nothing on its way to the sort-of-streamlined 'King' No.6014. There are some excellent views of the GWR's fine rolling stock (interiors as well as exteriors) , before moving on to its buses and goods road vehicles. Railway stations pictured are mostl;y rural delights – Pengam & Fleur de Lis, Rodwell, Tintern and Yelverton being just a handful of them.

In both books the quality of the photographs chosen couldn't be faulted, with reproduction and production quality to the highest standards. If these are your subjects, you will enjoy them.

★★★★ **MB**

A Ticket to Teesdale: Darlington–Barnard Castle–Middleton-in-Teesdale

By John P. McCrickard and John G. Teasdale. Published by the North Eastern Railway Association, 2024. ISBN 978- 1-91136-041-4. 136 pages, £14.95

The North Eastern Railway Association has a history of producing well-researched and illustrated books on various assets of North Eastern Railway (and predecessor and successor) history, with this new book dovetailing into that pattern nicely.

Covering the initial proposals for canals and railways serving Teesdale as far back as the eighteentth century, fortunately this book does not fall into the all-too familiar pattern of getting bogged down in the proposals and might-have-beens, getting to the actual history in good time. The geographic coverage of the work is more than just the Middleton branch from Barnard Castle as may be expected from the title, with it beginning at the junction from the ECML in Darlington, so those expecting a Teesdale-specific book may be disappointed as it shares book space along the history of the route from Darlington.

A wealth of photographic images from the North Eastern Railway Association supports the text and drawings, which may have made a better choice for the front cover than the slightly twee artists interpretation of an LNER G5 arriving at Middleton which, at least on my copy, is blurry in its reproduction and has a not-quite-right appearance to the locomotive and carriages, giving the cover a slightly amateur look and giving a false impression to the contents within.

There is enough detail in terms of building drawings (the still-surviving small station buildings and layouts at Romaldkirk and Cotherstone making an ideal basis for a model railway), track plans and signalling diagrams to satisfy the detail-orientated modeller and historian, whilst the general history of the route and incidents on it are more than enough to appeal to a more general railway or local interest audience.

★★★★ **RL**

Bahamas - the story of a steam locomotive

By Peter W. Skellon. Published by The Bahamas Locomotive Society, 22 Windsor Street, Barrow-in-Furness LA14 5JR. ISBN 978-0-9569292-2-8. 256pp. A4 hardback. £35.00

The LMSR's 'Jubilee' Class 4-6-0s totalled 191 locomotives built between 1934 and 1936. Over the next 30+ years they were at the forefront of express train haulage around the north of England, the Midlands, the Bristol main line from Birmingham and southern Scotland. They worked stoically, earning a firm following, without ever having a 'star name' until the last few survivors gained celebrity status in 1967. It's quite an achievement to produce a book of this size about just one of the class, No.5596 *Bahamas* which emerged from the North British Locomotice Co. in Glasgow in 1934. It helps that this member of the class is still with us enjoying active preservation.

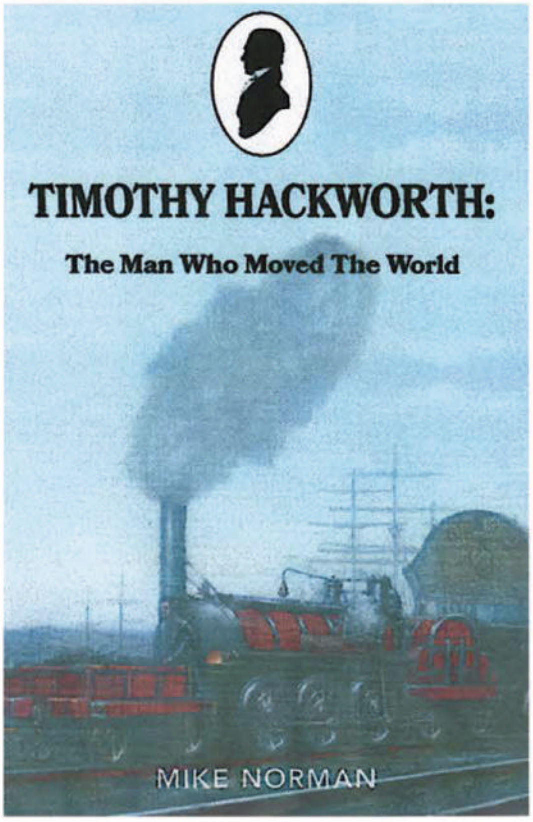
No.5596 began its career at Crewe North shed, subsequently serving at many top LMS depots including Camden, Millhouses, Edge Hill and Carlisle Upperby before ending up at Stockport Edgeley – where a whole new saga began!

Whilst at Stockport it attracted the attention of local enthusiasts who formed a plan to save the engine for preservation – with the firm intention of running it on BR main lines! The road to having the funds to actually buy No.45596 was a rocky one and it survived several deadlines to be towed away for scrap – but saved it was and funding raised to have it overhauled by the Hunslet Engine Co. in Leeds. At this time BR's attitude was hardening towards the use of privately owned locomotives on its lines and in October 1967 the now infamous 'steam ban' came into force. One of the Stockport (Bahamas) Locomotive Society's leading pioneers never accepted that embargo and his confrontational campaign to secure permission to run *Bahamas* seems to have generated ill-will at high levels without producing any sign of a relaxation of the Board's stance – quite the contrary.

But things change – the BR 'Return to Steam' at last saw *Bahamas* back on the main line in 1972 and over the years since then it has become a frequent and reliable performer all over the country. In 1968, at the end of a temporary stay at Bury depot, it steamed alongside our school and disrupted a physics lesson at the start of its journey to its new home at Dinting in Derbyshire! Last summer we met again on the Peak Rail heritage line; it looked superb.

This splendid book is a tribute to the survival of an ambassador for living steam and all those who have worked so hard for 50 years to keep its so.

★★★★★ **MB**



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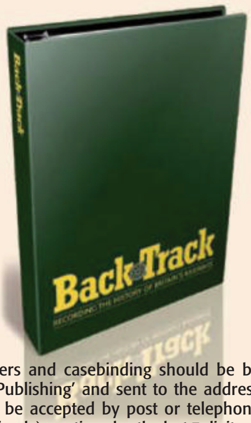

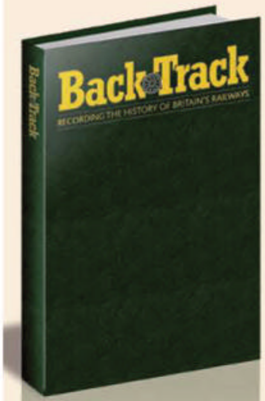

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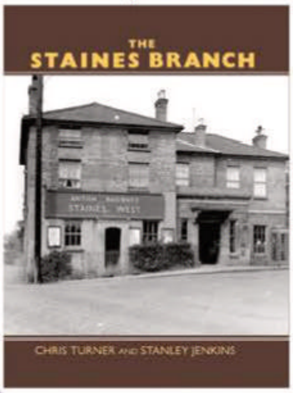

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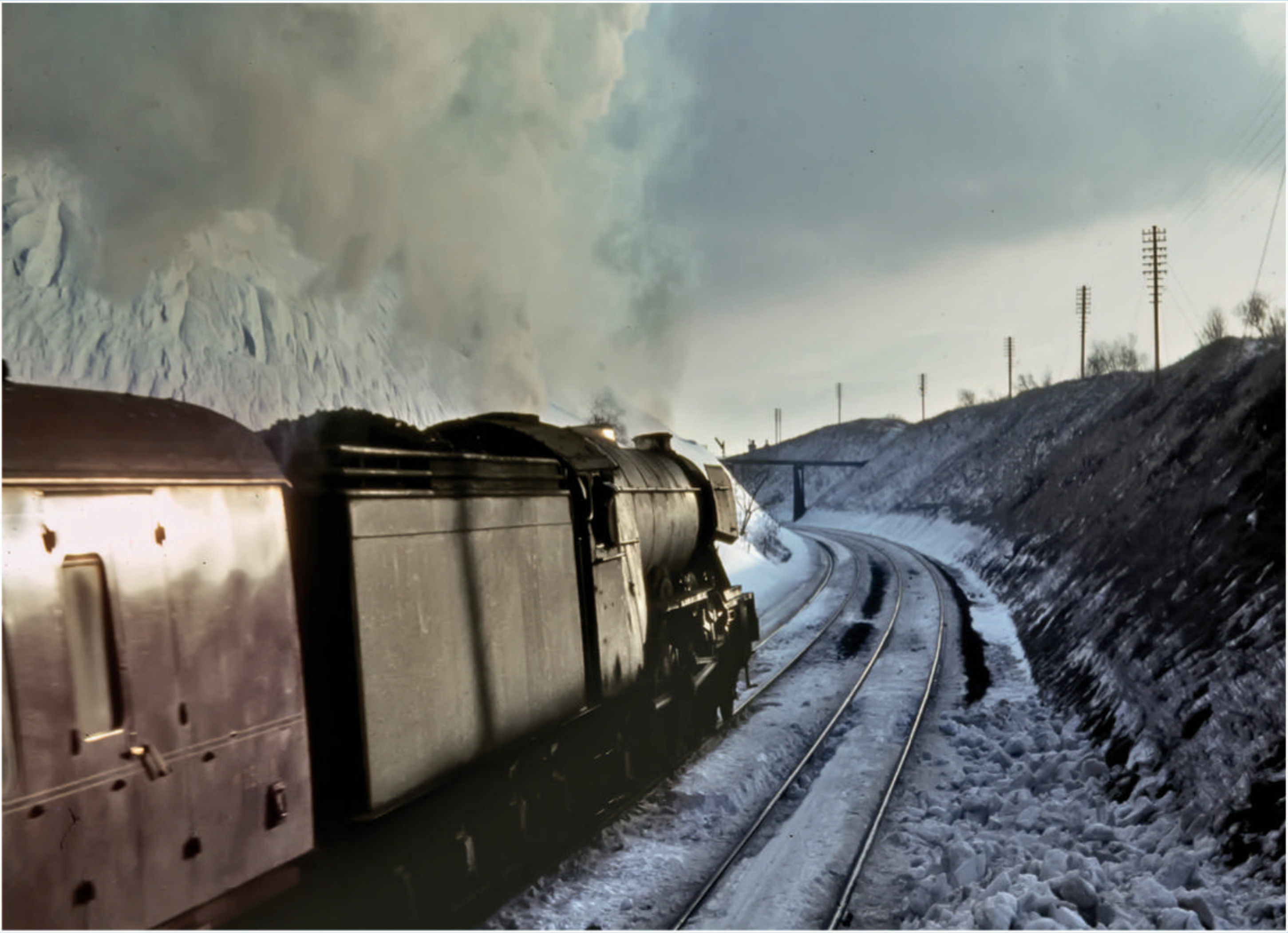

IN THE BLEAK MIDWINTER

The bitterly cold winter of 1962/63 will go down as one of the worst in living memory and conditions were especially harsh in the Yorkshire Dales. The more exposed sections of the Settle–Carlisle line were particularly vulnerable, the line being blocked completely by snowdrifts between 19th and late on 24th January when the backlog of freight trains started to be cleared. This picture of LNER Class A3 No.60073 *St. Gatien* hauling the southbound 'Waverley' was taken on 26th January and shows the weak afternoon sun reflecting off the side of the locomotive as it approaches Dent station. There was more misery in store during the following month when the route was again blocked by heavy snowfalls, trains being diverted via Low Gill and Ingleton.
(David Mitchell)

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